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SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES – 47th PLENARY MEETING REPORT (PLEN-14-03)

PLENARY MEETING,
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Brussels

Edited by Norman Graham & Hendrik Doerner

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PLENARY MEETING

7-11 JULY 2014, COPENHAGEN

1. INTRODUCTION

The STECF plenary took place at the Centre the Centre Borschette, rue de Froissart, Belgium, from 10 to 14 November 2014. The Chairman of the STECF, Dr Norman Graham, opened the plenary session at 09:15h. The terms of reference for the meeting were reviewed and the meeting agenda agreed. The session was managed through alternation of Plenary and working group meetings. Rapporteurs for each item on the agenda were appointed and are identified in the list of participants. The meeting closed at 16:00h on 14 November 2014.

2. LIST OF PARTICIPANTS

The meeting was attended by 24 members of the STECF and four JRC personnel. 18 Directorate General Maritime Affairs and Fisheries (DG MARE) and one DG Environment (DG ENV) personnel attended parts of the meeting. Section nine of this report provides a detailed participant list with contact details.

The following members of the STECF informed the STECF chair and Secretariat that they were unable to attend the meeting:
Georgi Daskalov
Didier Gascuel
Andrew Kenny
Sakari Kuikka
Hilario Murua
Jenny Nord
Simon Jennings

3. INFORMATION TO THE COMMITTEE

3.1. STECF plenary – information from the Commission - feedback on STECF proposals since last plenary

The DG Mare focal point for STECF Zsuzsanna Kőnig provided feedback from the Commission on STECF work.

Follow-up of the summer plenary:

- DG MARE followed up the STECF conclusions on EWG DCF to ensure good quality and consistency of the evaluation of data transmission (defining objective criteria for compliance, improvement of evaluation sheets and guidelines, publish the compiled recommendations of end-users)
- Delegated acts on discards plans were adopted in October taking note of STECF advice, further meetings are planned for 2015 to evaluate demersal fisheries plans.
- The STECF advice on sprat fishery in the Black Sea proved to be useful to justify that a de minimis exemption for the sprat fishery was not necessary.
- DG MARE made the advice on skipjack tuna available for the discussions in ICCAT
- Both advice on closed area and the Japanese clam will be looked at as part of the development of a new technical measures framework.
- It is a legal requirement to ask STECF advice with regards to Article 11.2 and 13.6 as well as ranking effort under cod management plan, fishing effort ceilings for the sole and plaice plan in the North Sea; and any changes to surveys under the DCF regulation.
- STECF advice on the Octopus model to assess and improve management framework was taken into account in the discussions with Mauritania on the renewal of the current protocol.

3.2. STECF plenary – information from the Commission – planning and STECF website

The STECF was informed that an additional Expert Working Group EWG-14-21 has been set up to complete the work of EWG-14-12 Balance fishing capacity-opportunity. EWG-14-21 will take place 13 to 15 January 2015 at JRC, Ispra.

The secretariat informed the committee that the report section of the STECF website has been updated. The report section of the STECF website contains all reports released by the STECF sorted in subsections according to main thematic areas. Every subsection now contains a short description of what it contains. The section 'Electronic data annex tables of STECF reports' has been substantially overhauled and new text on what it contains and how it should be used has been added.

Data tables displayed there are electronic annexes ("data tables") of STECF reports on:

- Evaluation of fishing effort regimes
- Economic performance of the EU Fleet
- Economic performance of the EU aquaculture sector
- Economic performance of the EU fish processing sectors
- Assessments of Mediterranean fish stocks
- Assessments of Black Sea fish stocks

Note that all of the "data tables" available here are integral parts of the STECF reports with which they are associated and are not updated after the reports have been published. It is essential to consult the relevant reports and familiarise yourself with their content in order to understand the legal basis of the

requests by the European Commission to EU Member States to submit the data contained in the tables. The reports also contain important information on the limitations of the data regarding coverage and quality.

It is also essential to quote the source of the data used in any further analyses (reference to the appropriate STECF report).

Note that the most-recently published STECF reports and associated “data tables” on economics (fleet, aquaculture, fish processing) and evaluation of fishing effort regimes, supersede any previously published reports and data tables.

Some data annexes information and a set of derived indicators can be obtained through interactive tables, charts and maps also through the ‘Data Dissemination’ tool on the Data Collection website maintained by the JRC (https://datacollection.jrc.ec.europa.eu/data-dissemination).

4. STECF INITIATIVES

4.1. JRC presentation bio-economic activities

On invitation by the STECF the work 'Bioeconomic data mashup' by Ernesto Jardim (JRC) was presented. The work aims to build a dataset with economic and biological data, to support the ex-ante and ex-post evaluations of management plans. In more detail, the work aims to expand the knowledge based used to evaluate management plans, so that economic effects of distinct management options can be considered, as well as, include economics in the fleet dynamic models.

This analysis presents some challenges, namely (i) the mismatch between the spatial aggregation of the data, where the economic data is at the supra region level while the biological data is at the sub region level; (ii) and the mismatch between the fleet definitions, where the economic data is aggregated with the 50\% rule in 'fishing technique', which is an aggregation of gears, while the biological data is aggregated at the level of the gear.

Additionally the effort concepts used in both analysis differ. While in economics effort is a proxy for costs and what matters is that one day off has *y* costs (gear is only important if the cost structure changes); in biology effort is a proxy for fishing mortality and the interest is that one hour of fishing activity kills *n* individuals and gear is important because selectivity changes.

The solution proposed in this work is to scale the economic variables to the transversal variables aggregation (see DCF for definitions).

Transversal variables are "administrative" information, required for management and monitoring, namely landings, effort and capacity, which have a high level of disaggregation. So, an economic variable at metier level can be computed by rescaling a standardized economic variable by a transversal variable, e.g. costs by metier = costs per unit effort by fleet X effort by metier.

The results presented illustrated the ideas described above and showed how the information could be used to run new analysis about the cost structure. The next steps will be to (i) update the dataset and rerun the analysis to include the latest submissions; (ii) model standardized economic variables, *e.g.* to fill missing data; and (iii) publish results, including the dataset with the standardized economic variables.

As a result of the experience accumulated, the following comments were made with regards to management plans:

1) the computation of costs is the first step, to include in MSE a cost function will have to be fit;
2) for MSE a price function will also have to be fit, but in the context of single species may be of limited use if the fleet does not depend on the species;
3) MAPs will have specific needs that will need to be dealt on a case-by-case basis;
4) the knowledge base must include the relevant transversal variables to scale up the costs ad revenues;

and regarding the DCF and data calls:

1) days-at-sea must be included in the transversal variables required by the economic data call;
2) fuel consumption could be requested at a more disaggregated level;
3) codes should be harmonized, *e.g.* AER and Effort were using different versions of the FAO alpha codes for species;
4) variables should be called using the DCF definitions, *e.g.* 'vessel length' when in the DCF is called 'length over all';
5) different variables should have different codes, *e.g.* fleet segments and clusters;

5. ASSESSMENT OF STECF EWG REPORTS

5.1. STECF EWG 14-09 Mediterranean assessment part 1

Request to the STECF

STECF is requested to review the report of the STECF Expert Working Group meeting, evaluate the findings and make any appropriate comments and recommendations.

Introduction

The report of the Expert Working Group on Assessment of Mediterranean Sea stocks – part 1 (STECF EWG 14-19) was reviewed by the STECF during the plenary meeting held from 10 to 14

November 2014 in Brussels, Belgium. The following observation and conclusions represent the outcome of that review.

STECF observations

The meeting was the first STECF expert meeting for undertaking stock assessments of small pelagic and demersal species in the Mediterranean planned for 2014. The meeting was held in Rome, Italy from 14 to 18 July 2014. The meeting chair person was Massimiliano Cardinale and the EWG was attended by 21 experts in total, including 4 STECF members plus 3 JRC experts.

Historic fisheries and scientific survey data were obtained from the official Mediterranean DCF data call issued to Member States on April 15th 2014 with deadlines on 9th of June 2014. All concerned member states provided the requested data, although not always in respect of the deadline.

In relation to each of the Terms of Reference (ToRs), STECF notes the following:

ToRs (a-b) Update and assess historic and recent stock parameters: the EWG 14-09 undertook the stock assessment of 15 stocks. 13 out of these 15 assessed stocks were classified as exploited unsustainably; the status of the remaining 2 stocks could not be defined (Table 5.1.1.).

ToR (c) Provide for each of the 15 priority stocks a short term and a medium term forecast: the EWG 14-09 conducted short term forecasts of stock size and catches for 11 stocks and medium term forecast for two stocks (Table 5.1.1.).

ToR (d) Evaluation of DCF data quality by EWG experts: in fulfilment of TOR (d), stock specific evaluation of the data quality were conducted for all stocks requested under ToR (a-c) by the EWG 14-09 experts. Moreover, JRC team examined the data coverage and quality for the fisheries and survey data. This was performed by means of data exploration and the MEDITS SQL quality checks developed by JRC. Results of the evaluations are reported under chapter 5 - ToR (d) and at the end of the assessment section of each stock. Data coverage was not always complete in the latest data call: France did not provide any fisheries data for GSA 8 (Corsica); moreover effort data for all French GSA's are absent prior to 2012. Italy in general did not provide any fisheries data prior to 2005. Apparently, lack of specific Croatian data for 2012 and 2013 did not allow the EWG to apply an analytical methodology for assessing hake in GSA 17. Additionally, officially submitted sardine landings data from Croatia was not used during EWG 14-09; experts identified them as incorrect and used their own 'correct' data. As a result of not undertaking data collection in accordance with DCF requirements, Greece did not submit any data for 2009-2012 and submitted only last quarter of 2013. Due to this gap in data, stock assessment (except small pelagics) seems unlikely to be performed for any demersal species in the next 2-3 years. More detailed issues identified in the data are described in the stock assessment sections of the EWG 14-09 report. In addition TOR (d) section includes a more extended data coverage/quality evaluation, reporting on all data collected under the 2014 Data Call and not only those related to the stocks assessed.

STECF conclusions

Based on the findings in the EWG 14-09 report, STECF concludes the following:

Among the 15 demersal and small pelagic stocks assessed by the EWG 14-09, 13 are currently being exploited at rates not consistent with achieving MSY (overfishing is occurring) and 2 stocks

were not assessed due to data deficiencies or poor model fits. A summary of stock status is given in Table 5.1.1.

Table 5.1.1. Summary of stock status for the 15 stocks assessed by the EWG 14-09.

Stock area	Species	Common name	Assessment	F	F_{MSY}	F/F_{MSY}	B/B_{lim}	Short term	Medium term
GSA 6	*Merluccius merluccius*	Hake	XSA	1.48	0.15	9.87		Yes	No
GSA 6	*Mullus barbatus*	Red mullet	XSA	1.47	0.45	3.27		Yes	No
GSA 6	*Micromesistius poutassou*	Blue whiting	XSA	1.52	0.16	9.50		Yes	No
GSA 6	*Nephrops norvegicus*	Norwegian lobster	VIT	0.59	0.15	3.93		No	No
GSA 7	*Merluccius merluccius*	Hake	a4a	1.67	0.17	9.82		Yes	No
GSA 7	*Mullus barbatus*	Red mullet	XSA	0.45	0.14	3.21		Yes	No
GSA 9	*Merluccius merluccius*	Hake	XSA	1.30	0.22	5.91		Yes	No
GSA 9	*Mullus barbatus*	Red mullet	XSA	0.70	0.60	1.17		Yes	No
GSA 9	*Micromesistius poutassou*	Blue whiting	XSA	0.38	0.32	1.19		Yes	No
GSA 9	*Nephrops norvegicus*	Norwegian lobster	XSA	0.43	0.21	2.05		Yes	No
GSA 17-18	*Engraulis encrasicolus*	Anchovy	SAM	1.04	0.50	2.08	0.92	Yes	Yes
GSA 17-18	*Sardina pilchardus*	Sardine	SAM	0.53	0.23	2.30	1.14	Yes	Yes
GSA 17	*Merluccius merluccius*	Hake	VIT	1.01	0.28	3.61		No	No
GSA 25	*Mullus barbatus*	Red mullet	SepVPA	NA	0.30	NA		No	No
GSA 25	*Mullus surmuletus*	Striped red mullet	SepVPA	NA	0.14	NA		No	No

STECF concludes that the EWG 14-09 adequately addressed the Terms of Reference and endorses the findings presented in the report.

5.2. STECF EWG 14-10: Aquaculture economics

Background

Following the latest DCF call for economic data on the EU aquaculture, EWG 14-10 is requested to analyse and comment on the economic performance of the EU and national aquaculture sectors between 2008 and 2012.

Previous editions of this report have been fundamentally descriptive and have focused more on the presentation of data. This year's report should provide a more analytical approach notably on the drivers and aspects of policy relevance in aquaculture. Analysis for variables and indicators not explored in previous reports should be developed (e.g. debts, investments, raw material volume and costs). Additionally, the issue of data quality remains essential for the 2014 report.
In 2014, the Economic Report on EU aquaculture should have a special chapter designed to deepen analysis on this sector.

Terms of Reference

STECF is requested to provide an Economic Report on Aquaculture sector for 2014 including, at least, the following sections:

1. A summary containing key findings.
2. EU aquaculture economic overview: drivers and main trends. (It must include specific sections on aquaculture employment, economic performance, and productivity at EU level)

3. EU analyses of economic performance by aquaculture segments
4. National chapters on the economic performance of the aquaculture segments:
   - National aquaculture overview
     - o Recent developments
     - o Employment and average salaries
     - o Economic performance and indicators
     - o Structure and performance of aquaculture segments
   - Issue of special interest
   - Outlook for future production trends
   - Data coverage and quality

5. Special topic: Areas for growth in the EU aquaculture sector.
   - EU overview
     - o Short recognition of accepted issues effecting growth (Administrative/regulatory barriers (licenses, space, use of water, multilevel governance etc.)
   - Focus on technical externalities effecting growth:
     - o Organic waste
     - o Nitrogen, phosphorous
     - o Escapes
     - oDiseases / viruses / antibiotics feed dependence
     - o Domestication of new species
   - National overview
     - o Most important areas to be addressed for production growth (Regulatory/Technical)
     - o New developments in terms of production technology and regulatory measures.
     - o Future outlook for growth (2013-2014)

Request to STECF

STECF is requested to review the report of the STECF Expert Working Group meeting, evaluate the findings and make any appropriate comments and recommendations.

Introduction

The Expert Working Group 14-10 convened in September 2014 in Ispra (Italy), to produce the 2014 Economic Performance of the European Union Aquaculture sector report. The report reflects the work by 24 external experts and 2 experts of JRC that attended the meeting. Furthermore, 4 external experts were available by correspondence.

This is the fourth report focusing on the performance of the aquaculture sector and providing an overview of the latest available information on the structure, social, economic and competitive performance of the aquaculture sector at national and EU level. The data used in this publication covers the period from 2008 to 2012, and was collected under the Data Collection Framework (DCF). The call for data was issued by DG MARE on the 19th of May 2014. Member States were requested to submit the data within one month after the call, making the submission deadline the 19th of June 2014.

STECF observations

The quality of the data submitted compared to the previous data calls continues to improve. However, there are still issues with several parameters that Member States should improve in the future. Data checks were performed by the JRC before the meeting and communicated to the Member States for possible corrections. Furthermore, experts at the EWG meeting also checked the submitted data. The checks resulted in data resubmissions by some MS after the deadline and even after the EWG meeting.

The data coverage improved for 2012. This is to some extent was driven by the improvements in UK and Cyprus data. This improves the current analysis of the EU aquaculture sector. However, there is still room for improvement especially on the economic indicators.

STECF notes that there were:

a) MSs submitting incomplete data sets with some parameters missing thereby preventing an EU wide assessment of economic performance (e.g. Greece representing 8.8% in weight of the EU aquaculture sector),
b) the Netherlands only provided data for 2008 – 2011. The Dutch aquaculture production represents 3.7% in weight and 2.4% in terms of value of the EU aquaculture production in 2011.
c) the coverage of UK data has improved but is has not been possible to calculate all economic indicators (e.g. net profit) on the segment level for 2011, as the data set was incomplete. Most of variables are missing for the years 2008-2010.
d) For France some variables associated with some minor production segments are missing. These segments represent around 5-7% of overall national turnover. Therefore, it has not been possible for France to provide all indicators that fully encompass the total national production.
e) In addition there are minor data issues in other countries referred to in the report which prevent the analysis time series in several cases

STECF notes that while data covering freshwater aquaculture production is not mandatory, some MS did supply data. A mandatory collection of data on freshwater aquaculture would give a much more comprehensive overview of the economic performance of the sector which is also very relevant to cover the whole fishing and aquaculture production in Europe.

As data delivery for freshwater production is not mandatory and not all countries deliver the data voluntarily, the EWG used other data sources to give a more complete picture in volume and value of aquaculture production within the EU. STECF observes that in 2013, the working group included data from FAO and EUROSTAT. However, from 2014 the EWG have decided only to use EUROSTAT data. The reason behind this choice is firstly that FAO data actually is based on data originating from EUROSTAT and secondly that FAO try to estimate volume and value if data are missing in the EUROSTAT dataset. For the later, the EWG experts have compared actual figures with FAO estimation and concluded that these estimates are not reliable for countries with minor aquaculture productions, such as the land locked countries in EU. Taking this into account, the EWG decided not to include FAO data. Instead, only EUROSTAT data was used to cover the freshwater aquaculture sector in landlocked countries, which account for 3.2% of weight and 2.3% of value of the total EU28 aquaculture production in 2012. Additionally, countries without marine aquaculture still have some

freshwater production. For example, Belgium has a production in the freshwater aquaculture sector of 0.3% of weight and 0.2% of value for the EU. STECF agrees with the approach taken by the EWG Additionally, for the purpose of this analysis, the EU aquaculture production for EU has been completed by including EUROSTAT data to fill in the gaps of missing turnover and volume of sales in the report.

STECF observes that the 2012 DCF data included in table 2.1 relating to e.g. the number of companies and employment covers 90% (75% in 2011 report) of total value of EU production (following EUROSTAT total production). The necessary economic variables to calculate economic performance of EU aquaculture sector at a national level (see table 2.2 EWG 14-10) is available from the DCF for 78% (70% in 2011) of value of production, while full economic performance on segment level covered 75% (50% in 2011) of EU aquaculture production value.

STECF observes that there are several obstacles to future growth of the aquaculture sector, e.g.:

a) Environmental legislation (esp. Marine Strategy Framework Directive (MSFD) and Water Framework Directive (WFD)) may restrict the issuing of new licenses inter alia limitation on the discharge of nutrients. Where nutrient discharge is not permitted?, expensive recirculation system would be required for additional production capacities
b) Other environmental externalities, such as diseases which spread to natural stocks (like the salmon lice), the use of antibiotics and chemicals, and concerns regarding genetic mixing can be limiting factors.
c) Availability of feed may be a limiting factor in the future even with potential additional supply coming from the CFP landings obligation. Therefore, further research could be necessary in order to reduce the dependency on the currently used feeding inputs used in the aquaculture sector.
d) Competition for space in coastal waters (with other sectors like windfarms and Natura 2000 areas) and inland (with agriculture)
e) Availability of freshwater (rights) for inland aquaculture
f) Most companies are still relatively small as 90% of the employees are employed in companies with less than 10 employees. These companies are often family owned and have no or very limited intention to increase production. Large investments to increase production are not possible for many of these businesses due to lack of capital or lack of market demand.
g) There are only a few large companies which could act as a leader for parts of the sector.
h) The sector is relatively small and not attractive for the development of supporting industries which makes investments more expensive.

STECF observes that there are only a limited number of countries that expect a substantial growth in the sector despite the general desire by MS to expand production.

STECF conclusions

The EWG 14-10 report provides a good overview of the economic performance of the EU aquaculture sector. It also represents an improvement in terms of quality and coverage compared to previous reports. Also, a time series of five years is now available and thus improve the type of analysis that can be undertaken, for instance between various segments and production techniques within and between Member States. Despite the effort of individual experts, useful analysis was still limited by the coverage and quality of the data submitted by MS and in some cases the failure of submitting the required data.

The data submission by MS after the deadlines compromises the ability of the EWG to undertake its work effectively and may also compromise the quality of the report (see also section 7.2 of this plenary report).

STECF also notes that there is improvement in the comparability between DCF and Eurostat production data.

Regarding the future growth of the aquaculture sector, STECF concludes that administrative, legislative and technical issues are restrictive in fostering growth in production. From an economic perspective, the technical barriers will be solved if there is an economic incentive to do so.

Specialisation, using economics of scale and vertical integration, may give possibilities to improve the economic situation and competitiveness of the sector. However, in most cases this may be complicated and hampered by other obstacles identified above, thus preventing a substantial increase in the size of a farm.

STECF concludes that there is increasing competition with aquaculture products from countries outside EU, but the demand for aquaculture products are in general also increasing. Additionally, STECF considers that for future reports, price developments should be reported, as low prices could be an important factor for the future growth of the sector.

STECF acknowledges that the EWG-14-10 adequately addressed all of the Terms of Reference and endorses the findings in the report.

5.3. STECF EWG 14-11: Landing Obligations in EU fisheries- part 4

Request to the STECF

STECF is requested to review the report of the STECF Expert Working Group, evaluate the findings and make any appropriate comments and recommendations.

Terms of reference given to the EWG were:

1. Review the current scientific knowledge on the survival of species covered by catch limits in demersal fisheries in the North Sea, North Western Waters and South Western waters.

2. Identify potential discard problems in demersal fisheries in these sea basins that cannot be addressed through improvements in selectivity or would lead to disproportionate costs of sorting unwanted catches on board.

3. Identify species which for quota reasons may lead to restrictions to fishing activities in these sea basins.

Observations of the STECF

The Report of the STECF EWG 14 -01 represents the findings of the fourth Expert Group meeting in a series of such meetings planned to address the implications associated with the implementation of the

Landing Obligation, the provisions of which are prescribed primarily in Article 15 of the 2013 Reform of the Common Fisheries Policy (Regulation (EU) No
1380/2013 of the European Parliament and of the Council of 11 December 2013).

STECF notes that all the TORs were tackled. STECF observes how results from survival studies show that survival rates are highly variable and that direct comparisons between studies is problematic due to, different methodologies, gears, areas, seasons, etc. The EWG report also concludes that some species of rays have high (>50%) and consistent levels of survival. The rest of the species that appear in the literature could present high survival rates although the EWG report consider them as not consistent given the short observation periods.

STECF observes how the EWG report provides a list of potential (although not exhaustive) cases for de minimis exemptions based on difficulties on improving selectivity due to losses in marketable fish.

STECF observes how the group has identified the species that within the member state have higher catches that the total final quota (including swaps/banking etc.) that could be interpreted as choke species (at least at a member state level). The EWG has done this work by merging different data bases, and, due to the heterogeneity of the available information some stocks that are potential choke species for certain fisheries have not been included in the analysis. STECF observes that according to the work undertaken by the EWG there are a number of potential choke species, but that there also others for which quotas have not been fully taken

Conclusions of the STECF

The STECF concludes that EWG 14-01 has covered all the TORs of the meeting.

STECF agrees with conclusion that the EWG report provides in the report for the review of the survival literature. STECF concludes that that the rate of survival depends largely on the species concerned and on the fishery in general (including biological and environmental factors). STECF also concludes that where fish survive, the estimated rates are highly variable and that these rates are affected by experimental methodologies, gear types, areas, seasons etc., which make direct comparison between studies problematic.

In general, the studies identified show that elasmobranchs, specifically species of ray, appear to have the highest and most consistent levels of discard survival. Studies which have looked at flatfish species including plaice (*Pleuronectes platessa*) and sole (*Solea solea*) and dab (*Limanda limanda*) show variable results between species, with survival rates in the range of ~40 – 80%, although zero survival was observed in some experiments. *Nephrops* also have highly variable survival rates ranging from survival rates of 28 to 88%, but the studies showing the highest survival rates (80 and 88%) also had very short observation periods and should therefore not be considered as representative.

STECF concludes that in terms of TOR 2 the list of potential candidates to illustrate where selectivity improvements to reduce unwanted catches are likely to be problematic is adequate. Nevertheless STECF also concludes that this list of candidates is not necessarily exhaustive.

STECF concludes that the analysis provided in terms of the potential choke species is difficult to project forward, given that the new CFP and in particular the exemptions and flexibilities provided by the landing obligation produce new incentives to change fishing fleet's behavior as well as technical capabilities that will likely change the catch profiles of the fleets. STECF notes that the current excess of available quota shows that potentially there is flexibility in the system to accommodate part of the problem with choke species, although it may not imply a potential quota swap with another member state, precisely to be prevented from these technical and behavioral changes.

STECF also concludes that tables provided in annex III of the report is an estimable source of information to assess the size of the choke species problem, at least at member state level. Nevertheless STECF considers that there is some redundant information in the table provided in this annex (uptake of initial quota and landings to Initial Quota should in principle measure the same thing). STECF also concludes that the column of value is providing information on the market value (when caught and sold) of the quota that each member state has of this stock and that it is not providing any reference to nor on the potential economic consequences that the choke species could cause on the fisheries, neither on the potential swapping value of these quotas. In that sense, STECF considers useful an analysis of the economic consequences that the potential choke species will have on the performance of the fisheries, at least and as a first step, considering the same behavior and technical characteristics of the fleet observed in the past.

5.4. STECF EWG 14-12: Balance fishing capacity-opportunity

Request to the STECF

STECF is requested to review the report of the STECF Expert Working Group, evaluate the findings and make any appropriate comments and recommendations.

STECF comment

STECF preliminary reviewed the work done by EWG. An additional Expert Working Group EWG-14-21 (13 to 15 January 2015, JRC, Ispra) has been set up to complete the work of EWG-14-12 (see section 3.2 of this report). EWG-14-12 and EWG-14-21 will produce one joint report which will be reviewed by written procedure in end January – beginning February 2015.

5.5. STECF EWG 14-13: Fishing effort- part 2

Request to the STECF

STECF is requested to review the report of the STECF Expert Working Group, evaluate the findings and make any appropriate comments and recommendations.

Introduction

The report of the Expert Working Group on Evaluation of fishing effort regimes in European Waters Part 1 (EWG -14-13) was reviewed by the STECF during its 47th plenary meeting held from 10-14November 2014, Brussels, Belgium.

The following observations, conclusions and recommendations represent the outcomes of the STECF review.

STECF comments, observations, and conclusions

STECF notes that the Terms of Reference relating to fishing effort regimes in the following sea areas have been addressed almost fully by the Report of the EWG 14-13:

1. Eastern and Western Baltic,
2. the Kattegat,
3. the Skagerrak, North Sea, European waters in ICES Div.2 and the Eastern Channel,
4. to the West of Scotland,
5. Irish Sea,
6. Celtic Sea,
7. Atlantic waters off the Iberian Peninsula,
8. Western Channel,
9. Western Waters and Deep Sea
10. Bay of Biscay,

The EWG 14-13 Report provides updated estimates of trends in fishing effort, landings and discards by species, CPUE and LPUE by fisheries and species, partial fishing mortalities for effort regulated and non-regulated fisheries by Member States, spatio-temporal patterns in cod catchability, and detailed evaluations of the national implementation as regards fishing effort derogations granted under the provisions of article 13 of the new cod plan (Counc. Reg. No 1342/2008).

STECF notes that the means of data aggregation has been transferred to new software architecture. There are three motivations for this

1. Greater data security as all data is processed on a secure server.
2. Increased quality assurance through the exclusive use of the dedicated JRC upload facility.
3. Greater transparency of the data input and processing through a documented upload facility and processing algorithm and because of point two.

All data used by the EWG 14-13 was submitted through a revised upload facility and all processing was performed on the JRC secure server. STECF further notes that data processing time has also been reduced considerably. This is a welcome development as re-submissions are sometimes required during EWG meetings resulting in re-compilation of aggregated data. These benefits are likely to become increasingly apparent as the quantity of data for processing continues to increase.

Because of software problems when aggregating data it was not possible for the EWG to perform comparative analyses regarding cod and sole selectivity of fully documented fisheries (FDF) and fisheries not participating in FDF schemes.

STECF noted a number of generic issues dealing with (i) data re-submissions, (ii) gear categories used for discards raising and (iii) validity of CPUE conversion factors. These three points are detailed below. Additionally, STECF discussed the future of the database and some of the expected incoming issues.

(i) 2014 DCF Fishing Effort Data Call

The EWG 14-13 Report is based on data submitted by Member States in response to the 2014 DCF fishing effort data call in 2014. STECF notes a general improvement in Member States' submissions with regard to data completeness and quality as well as improved compliance with deadlines.
STECF notes, however, that the EWG-14-13 was seriously affected by late re-submissions of data. Some re-submissions unconnected to requested corrections were made up to few days before the

second EWG, sometimes without prior agreement and communication with the JRC. It had been attempted to prevent this situation by setting a 'gentleman's agreement' deadline for re-submissions set for two weeks before the second meeting. Some countries had respected this, others ignored it. Additionally, format errors in some submitted data were discovered by the EWG experts during the meeting (missing discards data reported as 0 (= no discards) instead of -1(=no information available)). The impact of such errors on the estimation of discards ratios was considered large enough to require corrections during the meeting itself. Data was still being re-processed on the second last day of the meeting. For this reason EWG-14-13 had to concentrate on producing key tables of the report.
STECF notes that the new institutional procedures for data processing compound the problem of late re-submissions because of the dependency of the EWG on the facilities at the JRC and greater time elapsed between error detection and availability of re-processed data. The new procedures, however, do ensure greater security, reproducibility and traceability.
The EWG will continue to set a deadline for re-submissions in future. STECF advises the Commission to support initiatives to prevent 'last minute' re-submissions. STECF also advises that given the new data processing system future EWG meetings will benefit from continuity of IT support within the JRC.

(ii) Categories used for discards raising

Member States provide information at the level of gear and mesh size class, but this is subsequently aggregated into fisheries, before the application of discards raising algorithms. STECF notes that the definition of fleet segments for estimating specific international landings and discards was initially devised in relation to the cod recovery plan (Reg(EC) 423-2004) and subsequently adjusted for the Long Term Management Plan for Cod (Reg) EC 1382/2008 but has remained unchanged since. Subsequent to the first assessments of effort regimes, new areas covered by different management plans have been added to the remit of the EWG. The definition of fleet segments for 'fill-ins' of discard information can be inappropriate (too highly aggregated, e.g. when all trawl fisheries are lumped together in one single category) when used for these areas (Iberian peninsula). Problems have also been identified when gears unregulated by the effort management regime take a significant proportion of the catch of species of greatest concern in the area (Western Channel). STECF advises that revised methodology for estimation of international discards be considered for some of the fishing effort regimes. More generally, STECF acknowledges that the objectives of EWG-14-13 extend now beyond the monitoring of the regulated effort, and that some revision of the established procedures, some of which have now been in place for ten years, should be undertaken.

(iii) Interpretation of CPUE conversion factors

STECF notes that the use of CPUE conversion factors can be questioned from a scientific point of view. The estimated CPUEs are not only influenced by the potential of a certain gear and mesh size to catch a certain species but also to an extent by the targeting behaviour of fleets and in which area they operate. For example, the large difference in CPUE for cod between TR1 and TR2 is to an unknown extent influenced by the fact that TR1 is used to fish for cod while cod is only a bycatch in the *Nephrops* TR2 fisheries. It remains unclear what would be the catchability of TR2 when used to target cod. Therefore, the CPUEs calculated in this report do not reflect the theoretical potential of a certain gear category to catch cod. Such estimates could only be derived from gear trials applying different gears in the same area. In addition, gears are used for different kinds of fisheries in different areas. For example, TR1 gears are used to fish for haddock and cod but also, in the central North Sea, to target plaice. These fisheries have different discard rates and CPUEs for cod that cannot be distinguished in the current transfer coefficient calculations.

STECF notes that fisheries-specific parameters for the various fishing effort regimes can be downloaded as digital Appendixes to the present report from the EWG 14-13 web page: http://stecf.jrc.ec.europa.eu/web/stecf/ewg1413.

(iv) Future perspectives

STECF reiterated that the EWG and the effort database were launched and designed in order to support the evaluation of the effort regimes, and that future perspectives are uncertain under the new CFP, particularly if effort limits are not to be used in future. STECF notes also that under the landing obligation, changes in selectivity will likely occur in many fisheries at the local scale, and current procedures for estimating and raising discards will be challenged. STECF suggests that any decision on the future use of and design changes to the effort database is done considering the wider strategic monitoring needs of the CFP and all data calls issued under the DCF.

In addition to the primary support for the evaluation of the cod recovery plans (Reg(EC) 423/2004; Reg(EC) 1342/2008) the catch and effort data has been and is continued to be used for a wide variety of uses. A summary of these are listed below, the list is not exhaustive, and as the data is freely available the full extent of its use cannot be fully quantified.

STECF PLEN-14-03

- STECF EWG 14-11 Landings Obligations in EU fisheries (part 4): Landings and discards by gear (re-aggregated data as used by STECF EWG 13-16).
- ToR 6-1 Selectivity in the Celtic Sea: Two contributing analyses.
- ToR 6-2 Technical measures and a results based approach: Catch numbers at age.
- Use of the landings by ICES statistical rectangle data.
- ToR 6-3 Advice on the state of cod, haddock and whiting stocks in the West of Scotland: Makes use of effort graphs form the STECF-14-13 report.
- ToR 6-4 Evaluation of national measures taken under Art 13(6) of the cod plan: Use of 'Fpar' tables.

Previous STECF Plenaries

- STECF EWG 13-16 Landings Obligation (part 1): Landings and discards by gear. Note; the data needed to be re-aggregated from the raw database into TAC management areas (cf effort management areas used in the electronic annexes).
- STECF PLEN-14-02 ToR 6-4 Update of the STECF assessment of closed areas: Cites results from STECF effort reports of 2011 and 2012.

Potential incorporation into future (STECF) work

- Assessment of North Sea multi-species management plan.

EU projects (organisations)

- Discard atlas:
    - Schevevingen Group: Discard Atlas of North Sea Fisheries
    - NWW High Level Group: Marine Institute, Galway, Ireland: Discard Atlas of North Western Waters Industrial and Pelagic Fisheries

    - NWW High Level Group: CEFAS, Lowestoft, Ireland Discard Atlas of the North Western Waters Demersal Fisheries
- BENTHIS: Effort by ICES rectangle.
- MareFrame: Effort by ICES rectangle, landings by rectangle, discards by gear group and vessel length class.
- MEFEPO (FP7): Effort by gear types. Report: Making the European Fisheries Ecosystem Plan Operational Work Package 5 Report, *Development and selection of operational management strategies to achieve policy objectives*. [NB: report published 2011, STECF database not properly cited].
- MYFISH (FP7): Effort by ICES rectangle. Electronic annexes cited in Shephard et al. 2014 (ICES Journal of Marine Science; doi:10.1093/icesjms/fsu146)
- European Parliamentary Research Service (EPRS): Discards by member state and species.
- EFCA European Fisheries Control Agency (EFCA): Effort, landings and discards by gear category. Discards by gear category has been linked with and compared to equivalent data from ICES to produce the 'Joint Deployment Plans Database' that also incorporates logbook data.
- DAMARA - Scientific support for the development of a management plan in the Celtic Sea. EC Project SI2.658980.
- GEPETO – Sharing Knowledge for Sustainable Fisheries - Interreg European cooperation project
- DEFINEIT (FP7): Spatial distribution of fishing effort in the North Sea.

Other projects (organisations)

- UNEP-ASCOBANS: Effort data by gear type (West of Scotland area). Special request to include data by quarter.
- MMO (Marine Management Organisation) UK: Discard rates for report "North Sea Cod Catch Quota Trials: Final Report 2013".
- EU member states: Landings by ICES rectangle and landings by gear type. To quantify the proportion of landings of given species coming from and to characterise the fisheries operating in their national waters.

Effort regime evaluation for the Baltic

For regulated gears in accordance with Council Regulation (EC) 1097/2007 and unregulated gears combined the total effort deployed in the Baltic in 2013was 41% lower compared to 2004 but 25% higher compared with 2012.

Deployed effort of regulated gears in cod plan areas A (subdivisions 22-24), B (subdivisions 25-28) and C (subdivisions 29-32) declined between 2004 and 2009 but fluctuated without clear trend since.

For small boats <8m LOA, data from Estonia was unavailable and data from Finland could not be used. Of the usable data the majority of effort was distributed between non-regulated gill nets (46%), pots (23%) and regulated gill nets (12%).

STECF undertook a provisional quantitative analysis regarding the estimation of effort deployed in units of days at sea by Member State, and compared the national uptake with the calculated maximum

effort available. STECF notes that its approach to estimate the maximum days at sea available per year and Member State from the product of its number of active vessels using one of the regulated gears times the days at sea per vessel can only serve as an approximation of the effort ceiling. From this analysis the average uptake of available days at sea over the time period 2008-2013 remained in the range of 36-38% in area A, 34-47% in the area B and 53-83% for the areas A and B combined. Only one Member State slightly exceeded the allowed limit for regulated gears in areas A and B combined in 2011 (Figure 5.1.7.3). No clear trend in average uptake could be revealed over the observed period.
According to the information submitted by member States, only Denmark has operated under the fully documented fisheries (FDF) scheme in the Baltic in 2012. The reported Danish catch of cod caught in fully documented fisheries with regulated gears amounted to 333 t in area A and 406 t in area B, representing 3% of the overall catch. A preliminary analyses of cod selectivity revealed that non-FDF fisheries were catching younger fish. However, the effects of different age reading methods applied in different national institutes remain unclear. Such preliminary results require further investigation.

Most cod landings stem from areas A and B. According to the available data area C plays only a marginal role in the present distribution pattern of cod landings in the Baltic (e.g. landings in 2013 in A+B = 44,252 tonnes; landings in area C = 71 tonnes, 0.2% of total). Cod discard rates are highest in area B, followed by area A.

Considering partial F estimates for cod in area A the stock is subject to overfishing and annual F reductions are not following the management plan but discard mortality is generally low. In recent years the effort regulated fisheries contribute more than 82% to the total fishing mortality. Since ICES did not accept the analytical assessment of the Eastern Baltic cod (Area B) in 2014, the STECF is not in the position to evaluate the partial fishing mortalities for this cod stock.

Effort regime evaluation for the Kattegat
In 2013 70% of the total effort was deployed by gears that are under effort regulation in the cod plan, dominated by the TR2 fishery (demersal trawls and seines with mesh 70-99mm). The effort deployed by regulated gears has decreased steadily from 2003 (by 57% between 2003 and 2013). Total effort in Kattegat has decreased by 46% between 2003 and 2013.

Fisheries in the Kattegat are almost exclusively conducted by Denmark and Sweden. There are three effort derogations in place in Kattegat for TR2, CPart13B, CPart13C and CPart11. All the Danish TR2 effort is under the derogation CPart13C from 2010 onwards. STECF notes that the uptake of the regulated gear TR2 exceeds the maximum effort levels defined in the annual TAC and quota regulations since 2010 as Member States applied additional effort allocations under article 13 of the cod plan. All other regulated gear categories in Kattegat are well below their respective effort base lines.

The Swedish regulated TR2 effort has decreased by 82% since 2003, partly due to a move towards the unregulated CPart11 category (achieves <1.5% cod catch by using a 35mm *Nephrops* sorting grid; introduced in 2003) which constituted 71% of the Swedish TR2 effort in 2013, and partly to an overall decrease in TR2 effort (38% since 2003).

The effort carried out by unregulated gears, including the Swedish *Nephrops* sorting grid under the derogation CPart11, has increased 43% between 2003 and 2013. It represents 30% of the total effort in 2013.

In 2013 the nominal effort (kW days at sea) deployed by small vessels (LOA<10m) constituted 13% of the total effort in the area.

STECF notes that information on fully documented fisheries FDF was only provided by Sweden and only for 2010. FDF fishing effort and catches appear negligible and are not evaluated further.
The table of international conversion factors is based on average CPUE (2011-2013). Red cells indicate imprecise values due to lack of adequate discard information, yellow cells indicate adequate discard information. The transfer factor between TR1 (donor gear) and TR2 (receiving gear) is believed to be underestimated since it is based on a TR2 CPUE with German cod discards still included (the allocation was based on the Swedish TR2 discard rate in quarter four, which was 99.7% due to a quota closure). If the German discards are removed from the calculation, the transfer factor TR1/TR2 would be 0.509.

Kattegat

	donor gear	receiving gear						2011-2013		
		GN1	GT1	LL1	TR1	TR2	TR3	CPUE	LPUE	
3a	GN1		1	1	1	1	1	200	27	factor = CPUE donor/CPUE receiving
3a	GT1	0.005		1	0.017	0.008	0.111	1	1	if factor > 1 then factor = 1
3a	LL1	0.005	1		0.017	0.008	0.111	1	1	
3a	TR1	0.295	1	1		0.48	1	59	13	if CPUE=0 or LPUE = 0 then
3a	TR2	0.615	1	1	1		1	123	36	CPUE=1 or LPUE=1
3a	TR3	0.045	1	1	0.153	0.073		9	9	

STECF notes that that ICES did not provide an analytical assessment of cod in the Kattegat in 2014. STECF is therefore unable to provide analyses dealing with the partial fishing mortalities by fisheries (metiers), the respective correlations between partial fishing mortality and fishing effort and the review of reductions in fishing mortality of the effort regulated gear groups in relation to the cod plan provisions.

Effort regime evaluation for the Skagerrak, North Sea including 2EU and Eastern Channel
STECF notes that in this area, a substantial part of the effort is deployed by Non-European fleets (primarily Norway); this component is not accounted for in this report. Norwegian fishing effort is reported to ICES (ICES, 2013). Catch and effort data including the special conditions of the cod management plan in force since 2009 (CPart11 and CPart13) have been provided by all Member States with significant fishing activity in this area. Additionally, distinction is now provided across the various CPart13 specifications (A, B, or C).

The North Sea (area 3b2) is the main fishing area (79% of the total 2013 regulated effort in area 3b), followed by The English Channel (15%, 3b3), while the Skagerrak represents a smaller component (6%, 3b1).

In all three sub areas, regulated effort has decreased since 2003. The estimated overall reduction in effort (kW days at sea) in 2013 of regulated gears in the entire area 3b amounts to 43% compared to the average of 2004-2006 but was marginally higher (1%) compared to 2012.

Overall, the share of regulated gears to total effort in area 3b has also decreased regularly, down to 61% in 2013 on average (but no more than 45% in Skagerrak). In area 3b2 (North Sea), regulated effort is equally shared between beam trawls and demersal trawls/seines (52% and 43% of total 2013 regulated effort respectively). Small mesh beam trawling (80-119 mm, BT2) and demersal trawls/seines with larger mesh sizes (>=100mm, TR1) are the predominant fisheries. There is an

increasing trend for large meshed beam trawls (BT1) in recent years. In the Eastern Channel, demersal trawls/seines are also the main gears (63% of the 2013 regulated effort in the area, mainly smaller mesh size 70-99mm TR2), but with beam trawls and passive gears representing important fisheries as well (20% and 16% of the 2013 regulated effort respectively). The main gears in management area 3b1 (Skagerrak) are demersal trawls/seines (86% of the 2013 regulated effort), with a predominance of TR2. However, there was a strong increase in Danish TR3 effort in 2013 compared to 2012.

The unregulated effort has increased in sub-areas 3b2 and 3b3 in 2013 compared to 2012. This, together with the general decreasing trend of regulated effort, means that unregulated effort now represents almost 40% of the total effort in area 3b. This is despite nearly all French TR1 effort being re-classified from the CPart11 exemption in 2012 back to under article 13B.

From 2003 to 2012 the effort of small boats (LOA<10m) gradually increased from 3% to 9% of the overall effort deployed in the entire area 3b (Skagerrak, North Sea and 2EU, Eastern Channel). Absolute effort has been slowly declining since 2010 however and in 2013, the effort from vessels <10m was 8% of the total effort in this area. Unregulated gears account for 60% of total effort from vessels <10m.

In 2012 and 2013 fully documented fisheries represented a similar proportion of the total effort (5.5% and 5.1% respectively). The importance of FDF in the main cod gear (TR1) also remained static (28.8% in 2012, 28.4% in 2013).

Overall, cod discard rates have decreased after 2008 especially for TR1. However, discard rates for TR1 CPart13c showed a substantial increase in 2013 compared to 2012. High discard rates can still be found for TR2 gears. TR2 CPart13c shows very high discard rates in the North Sea including in 2013. In the Eastern Channel (area 3b3) discard information is very scarce and not representative. Catches from unregulated gears do not play a major role. Highest landings from unregulated gears come from unregulated Otter trawls in the Skagerrak.

Of non-cod species anglerfish, and saithe landings have decreased since 2009 while hake and plaice landings have increased. Whitefish landings in TR2 are globally low compared to TR1 landings but discard rates are higher; discards are a consistent proportion of total catch (~40-45%) for TR2. *Nephrops* landings have decreased in recent years. Catches with unregulated gears of sole and plaice are very small compared with the total catch.

For cod, TR1 and TR2 contribute more than 80% of the catches in area 3b combined in 2013. The most important gears for plaice are BT2, TR1 and TR2, while for sole BT2 and GT1 contribute to more than 80% of the catches. For plaice BT1 has higher landings than TR2 but discards are much higher for TR2.

The table of international conversion factors is based on average CPUE (2011-2013). Red cells indicate imprecise values due to lack of adequate discard information, yellow cells indicate adequate discard information available and green cells indicate representative discard information available.

	donor gear	receiving gear							
		BT1	BT2	GN1	GT1	LL1	TR1	TR2	TR3
3b1	BT1		1	0.039	0.059	0.103	0.05	0.088	0.63
3b1	BT2	0.014		0.001	0.001	0.001	0.001	0.001	0.01
3b1	GN1	1	1		1	1	1	1	1
3b1	GT1	1	1	0.661		1	0.849	1	1
3b1	LL1	1	1	0.377	0.571		0.484	0.861	1
3b1	TR1	1	1	0.779	1	1		1	1
3b1	TR2	1	1	0.438	0.663	1	0.563		1
3b1	TR3	1	1	0.062	0.093	0.163	0.079	0.14	

2011-2013	
CPUE	LPUE
73	73
1	1
1885	1855
1246	1214
711	711
1468	1118
826	414
116	116

factor = CPUE donor/CPUE receiving
if factor > 1 then
factor = 1

if CPUE=0 or LPUE = 0 then
CPUE=1 or LPUE=1

	donor gear	receiving gear							
		BT1	BT2	GN1	GT1	LL1	TR1	TR2	TR3
3b2	BT1		1	0.42	1	0.47	0.294	1	1
3b2	BT2	0.111		0.047	0.19	0.052	0.033	0.201	1
3b2	GN1	1	1		1	1	0.699	1	1
3b2	GT1	0.585	1	0.246		0.275	0.172	1	1
3b2	LL1	1	1	0.893	1		0.625	1	1
3b2	TR1	1	1	1	1	1		1	1
3b2	TR2	0.554	1	0.233	0.947	0.261	0.163		1
3b2	TR3	0.009	0.083	0.004	0.016	0.004	0.003	0.017	

2011-2013	
CPUE	LPUE
323	265
36	33
769	731
189	174
687	685
1100	917
179	75
3	3

factor = CPUE donor/CPUE receiving
if factor > 1 then
factor = 1

if CPUE=0 or LPUE = 0 then
CPUE=1 or LPUE=1

	donor gear	receiving gear							
		BT1	BT2	GN1	GT1	LL1	TR1	TR2	TR3
3b3	BT1		1	0.233	1	1	0.436	1	1
3b3	BT2	0.216		0.05	0.26	0.704	0.094	0.229	1
3b3	GN1	1	1		1	1	1	1	1
3b3	GT1	0.83	1	0.193		1	0.361	0.88	1
3b3	LL1	0.307	1	0.071	0.37		0.134	0.325	1
3b3	TR1	1	1	0.534	1	1		1	1
3b3	TR2	0.943	1	0.22	1	1	0.411		1
3b3	TR3	0.148	0.684	0.034	0.178	0.481	0.064	0.157	

2011-2013	
CPUE	LPUE
88	88
19	18
378	378
73	70
27	27
202	196
83	75
13	13

factor = CPUE donor/CPUE receiving
if factor > 1 then
factor = 1

if CPUE=0 or LPUE = 0 then
CPUE=1 or LPUE=1

STECF notes that with respect to partial F values on cod the overall long term F target of 0.4 stipulated by the cod management plan has been reached. However, because the stock is still below 150 000 tonnes a fishing mortality around 0.2 would be needed according to the plan.

Effort regime evaluation for the West of Scotland

The fishery West of Scotland is primarily an otter trawl fishery; beam trawls and static gears are hardly used. Effort within regulated gears is 58.8% less in 2013 compared to 2003. Regulated effort by trawl and seine gears (TR gears under Coun. Reg. (EC) 1342/2008) shows a long term decrease in effort and fell to its lowest level in the time series in 2011, but was stable between 2011 and 2013 for those nations reporting in both years.

Unregulated effort has been increasing since 2010, and has exceeded regulated effort since 2011 and the difference has increased again in 2013.

The most important category in terms of cod catch and landings is TR1 which over the period 2011-2013 on average, accounted for 94% and 87% of the total cod landings and catches by weight respectively from VIa. The second most important gear category is TR2, which can be seen to be a gear category with *Nephrops* as the dominant species in the landings. Based on relative contributions TR1 is the only gear group where the percentage cumulative cod catch in 2013 exceeded 20% and thus considered subject to annual effort adjustments (Coun. Reg. 1342/2008, art.12(4)).

The table of international conversion factors is based on average CPUE (2011-2013). Discard data are scarce for many regulated gear groups but have been interpreted as representative for TR1 and TR2.

Red cells indicate imprecise values due to lack of adequate discard information, green cells indicate representative discard information available.

West of Scotland

	donor gear	receiving gear							2011-2013		
		BT1	BT2	GN1	LL1	TR1	TR2	TR3	CPUE	LPUE	factor =
3d	BT1		1	0.25	1	0.003	0.023	1	1	1	if factor > 1 then
3d	BT2	1		0.25	1	0.003	0.023	1	1	1	factor = 1
3d	GN1	1	1		1	0.013	0.093	1	4	4	
3d	LL1	1	1	0.25		0.003	0.023	1	1	1	if CPUE=0 or LPUE = 0 then
3d	TR1	1	1	1	1		1	1	319	33	CPUE=1 or LPUE=1
3d	TR2	1	1	1	1	0.135		1	43	2	
3d	TR3	1	1	0.25	1	0.003	0.023		1	1	

For the most significant gear groups catching cod the correlation between partial F of cod and estimated fishing effort of regulated gears is statistically significant but negative. STECF is unable to determine the reason for this. Assessed F of cod in VIa remains high indicating the management measures in place in VIa have not been successful in achieving a reduction in fishing mortality.
With respect to Article 13.2 of the cod long term management plan

- Article 13.2.a has not been adopted by any member state
- Article 13.2b fisheries are estimated to account for less than 1% of the F total in 2013.
- Article 13.2c; in 2013 high discards from Scottish fisheries under 13.2c meant this category contributed nearly 50% of the F total in 2013.
- Article 13.2d; the partial F for this one category is between 0.57 and 0.6 (58% of F total). Discards have made the much greater contribution to fishing mortality in recent years.

Effort regime evaluation for the Irish Sea
For boats LOA>=10m there has been a 37% decline in Irish Sea nominal effort (kW*days at sea) since 2000, the majority of which occurred between 2003 and 2009. Since 2009 effort has remained relatively constant.

Irish Sea fisheries are predominantly demersal trawling and seining (TR group). Combined, TR effort mirrors the overall effort trend representing 55-60% of total Irish Sea effort. As part of regulated gears, the TR group accounted for over 70% of all effort from 2003, (over 80% since 2008). Within the TR group, the TR2 category (70-99mm mesh sizes) dominates. The majority of TR2 effort is now carried out under Article 13 of Coun. Reg. 1342/2008. A small amount of effort is reported under Article 11 of the regulation (CPart11) since 2010, 4-9%.

During 2006-2013, small boats' effort (LOA<10m) varied without a clear trend and constituted among 12-15% of the overall effort deployed. The majority of effort by the under 10m vessels is directed at pots and traps.

STECF notes Ireland resubmitted landings data from 2009-2013 in which cod landings recorded in ICES rectangles 33E2 and 33E3 of VIIa have been reassigned to ICES division VIIg due to uncertainty in catch origin. STECF also notes discard data is not consistently available for all years or all categories, resulting in distorted CPUE trends and uncertainty in gear ranking by catch. TR2 gear has been the most important for cod landings since 2011.

The table of international conversion factors is based on average CPUE (2011-2013). Discard data are scarce for many regulated gear groups but have been interpreted as representative for BT2, TR1 and TR2. Red cells indicate imprecise values due to lack of adequate discard information, green cells indicate representative discard information available.

Irish Sea

	donor gear	receiving gear							2011-2013		
		BT2	GN1	GT1	LL1	TR1	TR2	TR3	CPUE	LPUE	factor =
3c	BT2		0.269	0.338	1	0.284	1	1	89	60	if factor > 1 then
3c	GN1	1		1	1	1	1	1	331	331	factor = 1
3c	GT1	1	0.795		1	0.84	1	1	263	263	
3c	LL1	0.011	0.003	0.004		0.003	0.013	1	1	1	if CPUE=0 or LPUE = 0 then
3c	TR1	1	0.946	1	1		1	1	313	312	CPUE=1 or LPUE=1
3c	TR2	0.888	0.239	0.3	1	0.252		1	79	31	
3c	TR3	0.011	0.003	0.004	1	0.003	0.013		1	1	

STECF EWG 14-13 notes that the correlations between the summed partial Fs for landings of the regulated fisheries and their estimated fishing efforts are almost all non-significant.

Effort regime evaluation for the Celtic Sea

The review of trends in fisheries-specific effort and catches in the Celtic Sea is presented at the level of aggregation as defined in the multi-annual cod plan, to allow managers to evaluate the data with the view to the potential extension of the cod plan to include the Celtic Sea. The Celtic Sea is defined into two management areas, i.e. ICES Sub-divisions 7bcefghjk and ICES Sub-divisions 7fg.

Analysis of the larger area 7bcefghjk is affected by the fact Spanish data are only included for 2012 and 2013 as no data for earlier periods have been submitted by the Spanish Authorities. Area 7fg is only affected to a minor extent.

In 7bcefghjk in terms of kW*days in 2013 France contributed 37%, Ireland 20%, England and Wales 15%, Spain 8%, the Netherlands 8%, Belgium 5%, Scotland 3%, Germany 2% and Denmark 1%.

The demersal fisheries are dominated by the gears TR1, TR2 and BT2 (24%, 18% and 10% of total Celtic Sea effort respectively). In recent years (since 2008) fishing effort has been relatively stable, with the increase for most gears from 2012 due to the inclusion of Spanish data from 2012. The exception is TR1 effort which has been increasing since 2009.

For “unregulated” gears most of the effort is Dutch, French, Danish and Irish pelagic trawl fisheries (17% of total Celtic Sea effort), with a recent (since 2009) increase of Danish and Irish pelagic boats fishing for boarfish in the Celtic Sea.

The overall effort in 7fg decreased between 2003 and 2013, however, in the last two years the effort showed an increase to levels similar to 2004/2005. This increase is mainly due to an increase in effort by the demersal trawlers (TR). The effort in unregulated gears has been increasing steadily since 2006 until 2012, but in 2013 the unregulated gears effort showed a decrease, mainly due to the reduction of effort using pots.

STECF EWG 14-13 notes that the coverage of discard information for gears catching cod in the wider Celtic Sea is often low. In most cases the discard coverage index is either C (<33% of landings having discard information) or B (≥ 33% < 66%); only the relatively low cod catching gears BT2 and TR3 have category A (> 66%).Discard coverage from ICES Divisions VIIfg is better.

Landings and estimated discards of cod (where available) for the main gear in the Celtic Sea catching cod (TR1) have increased significantly since 2010, with 2012 landings double the landings in 2011. This reflects the particularly strong 2010 year class (the largest since 1987) entering the fishery and increased quota available. Landings of anglerfish, haddock and whiting have also increased since 2011 from this gear.

The contribution to Celtic sea cod landings from ICES Divisions VIIfg has been 60-70% in all years (except 2011) since 2003.

CPUE for cod has increased since 2011 in all main regulated gears, consistent with the strong 2010 year class of cod.

For the wider Celtic sea TR1 gear is the main gear landing anglerfish and cod; TR2 is the main gear catching *Nephrops*; BT2 is the main gear landing plaice and sole, while LL1 is the main gear landing hake. For ICES Divisions VIIfg TR1 is the main gear landing anglerfish, cod and hake; TR2 is the main gear landing *Nephrops*, while BT2 is the main gear landing plaice and sole.

Effort regime evaluation for southern hake and Norway lobster

STECF notes that the major data deficiency in its analyses is the lack of Spanish data in 2010 and 2011, (99% of kWdays in the area comes from Spanish and Portuguese vessels). Furthermore it is important to note that Spanish fishing vessels using regulated gears were not granted fishing effort derogations by the Spanish Authorities in 2012 and 2013 as provided for in Annex IIB to the annual TAC and Quota regulations.

Passive gears (3b, 3c and 3t) accounted for approximately 27% of all effort in 2012 and 2013. However, such results have a limited meaning regarding the relative fishing pressure exerted by these fleets, since the unit kW*day does not take into account the number of hooks deployed by longlines or the area covered and soak time of passive nets.

In 2012 and 2013, about 19% of the effort was assigned to non-regulated gears ("3t" and "none" gears), of which trammel nets ("3t") contribute 8% to the overall effort deployed. Most non-regulated effort is deployed by gears that do not target hake, *Nephrops* or anglerfish

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For small vessels (LOA<10m) Portuguese data do not provide gear or fishery specific information. France and Spain have provided data for 2012 and 2013 only.

STECF notes landings of hake reported to STECF and to the ICES assessment working group were about the same until 2009 but, in 2012 and 2013, landings reported to STECF are 46% and 66% of the values included in the ICES assessment. This is due to much lower landings reported in logbooks than in sales notes and high values for unallocated catches estimated by ICES in these years.

Regulated trawlers (gear group 3A) are most important for hake landings (49% for Spain and Portugal combined). The Spanish regulated trawlers discarded 91% of the total discarded volume of hake. Most important unregulated gear was trammel net (landing 6.6% of hake total weight).
Spanish and Portuguese regulated trawls landed 91% of total *Nephrops* landings in.

The discard coverage index for the main gears catching hake and *Nephrops* was classified as 'A' (representative discard information) for all years (hake) and most years (*Nephrops*).

Effort regime evaluation for Western Channel sole

STECF notes the majority of fishing effort deployed in the Western Channel is effort that is not being regulated by the Management plan for sole in Division VIIe. The two regulated gear groups, beam trawls (80mm and above; labelled '3a') and the static nets, (Gill and trammel nets up to 219mm mesh size; labelled '3b') account for only a relatively small proportion (about 15%) of the overall deployed effort.

Effort in the regulated beam trawl fleets (gear 3a) decreased gradually from 2% above the 2004-2006 baseline level in 2004 to 37% below that level in 2009 and thereafter has fluctuated between 30% and 37% below the 2004-2006 level. Effort in the regulated static gear (gear 3b) dropped substantially from 9% above the 2004-2006 level in 2004 to 77% below the 2004-2006 level in 2013. The effort from the vessels <10m fluctuates between 13% and 25% of the effort deployed by the vessels >10m.

STECF notes that only UK (England and Wales) have had vessels operating under an FDF scheme in the Western Channel (2012 and 2013). In 2013 9 vessels (7 in 2012) were operational in the FDF fisheries using the regulated beam trawl gear (3a) and one vessel (same as 2012) using the unregulated beam trawl gear (mesh size <80mm). The effort of the FDF fisheries to the total deployed effort by the regulated beamers (3a) and unregulated beamers amount to 24% and 5% respectively (17% and 1% in 2012).

STECF estimated the uptake of the permitted fishing effort in units of days at sea per vessel. The results should be interpreted with caution as the estimated ceilings are based on number of active vessels times the number of days allowed. STECF notes that the number of active vessels and their associated days at sea may be overestimated (multiple counted) if they changed regulated gears. For the regulated beam trawl fleet (3a), the English series indicate an increasing uptake (47% - 95%) over time whereas the Belgian and the French regulated beam trawl fleets show a stable uptake at a low (around 10%) and high level (around 65%) respectively. The English regulated static gear (3b) show a slight increase in uptake (20%-45%) over time whereas the French regulated static gear shows a stable uptake of around 50%. However, uptake by both French fleets fell sharply in 2013 to approximately 30% and less than 40% respectively.

National amendments to the effort regulations were granted to the UK in 2012 and to the UK and France in 2013. This has the effect of increasing the maximum permitted fishing effort and lowering the percentage uptake of effort. In 2012 UK beam trawl fleet effort uptake fell from 95% to 75% as a result of the extra days allocated. In 2013 the effect was a change in uptake from 85% to 67%. The changes in French uptake were a reduction from 31% to 29% for the beam trawl fleet and a reduction from 38% to 35% for the passive gears fleet.

STECF notes that the aggregation for the fill-ins of the discard estimates for the unregulated gears in area 7e – which are responsible for substantial catches of the main species - sometimes do not reflect the real discard values for these unregulated gears. Member States provide discard estimates specific for gear and mesh-size. The aggregation only takes account of the gear and not the mesh-size. Therefore, sometimes discard rates for e.g. otter trawls with mesh-size 16-32 mm are used as a fill-ins for otter trawls with mesh size 80-89 mm. Regulated gears are linked to gear and mesh-size and therefore do represent true discard estimates when fill-ins are used.

In 2013 the unregulated gears account for 30% of overall sole landings of which the otter trawl fleet is responsible for 26% of these landings (the percentage of sole landings caught by unregulated gear has

been ≥ 27% in all years). Unregulated gears accounted for 35% of plaice landings and 88% of cod landings in 2013, (otter trawl accounted for 33% and 83% respectively).

CPUE of sole and plaice from beam and static gears is increasing. CPUE and LPUE of cod by otter trawls and dredges increased sharply between 2010 and 2011 (with CPUE preceding LPUE) but have fallen again, possibly in connection with a strong year class.

Effort regime evaluation for the Western Waters and Deep Sea
In accordance with the Terms of reference, the Report presents trends in effort for defined fisheries (major gear groups) for 18 management areas within the convention areas of ICES and CECAF. STECF notes that discard information is often scarce.

Bottom trawl effort is concentrated in ICES Area IVa as well as the Continental shelf and slope to the west and southwest of Ireland and the UK.

Pelagic trawling was concentrated to the west of Ireland, and to the west and north of Scotland in the mid 2000s. This effort decreased greatly between 2007 and 2009, increased in 2010 before reducing again in 2011 and 2012. In 2013 effort increased in Areas IVa and IXa, but decreased in areas VIIIa and VIIIb.

Longline effort was concentrated on the shelf and slope between Shetland and Portugal but has been in decline in recent years.

In the mid 2000s gill net effort was concentrated in the Celtic sea and Porcupine Bank. Due to current restrictions in the use of deep water gill nets much of this effort is now concentrated in the Celtic sea, with some effort in the North sea, west of Scotland and the Bay of Biscay. In 2013 effort increased in areas VIIg and VIb but decreased in area IVb.

Beam trawling is concentrated in the Celtic sea and the western English Channel. While beam trawls are not a deep water gear some of the species caught are classified under Annex 2.

Effort regime evaluation for the Bay of Biscay
STECF EWG-14-13 notes that analyses and trends presented in the Report include data from Spain for 2012 and 2013. However, Spain did not provide data for previous years and this is important to take into account when interpreting the trends in fishing effort and landings in the tables and graphs presented in the Report.

The multiannual plan for the sustainable exploitation sole in the Bay of Biscay (R (EC) 388/2006) prescribes maximum annual fishing capacity for Member States' vessels that hold a special permit to fish. The Report provides fisheries-specific effort data for the Northern Bay of Biscay (ICES Div. VIIIa) and the southern Bay of Biscay (ICES Div. VIIIb) separately.

In 8a-BoB, 90% of 2013 effort is French, 7% Spain, 1% Belgium and 1% Netherlands. The main French fisheries are otter trawl, trammel and gill net and pelagic trawl. The main Spanish fisheries are longline, otter trawl and gill net. In 8b-BoB, 67% of effort in 2013 is French, 25% Spanish, 6% Belgium and 1% each from the Netherlands and England. The main French fisheries are otter trawl, trammel and gill net, longline and pelagic trawl. The main Spanish fisheries are otter trawl, pelagic seine and longline.

Due to data deficiencies, STECF was unable to fully evaluate the effort regime for sole in the Bay of Biscay. Spain provided data on fishing capacity in the unit of gross tonnage (GT) as requested in the data call, for the year 2012 only; France provided data in units of kW not GT.
Between 2012 and 2013 (the two years for which Spanish data is available) overall effort in units of kW days at sea fell by 10% in area VIIIa and increased by 1% in VIIIb.

Almost all effort of small boats is French. No Spanish, Belgium nor Netherlands data are available for small boats. Also the effort data available for small boats before 2010 seem to be incomplete. Small boats represent, over the last four years, almost 20% of the effort deployed by the large vessels in 8a and 10% in 8b.

The vast majority of sole catches are taken by French vessels, in area 8a the breakdown by fleet is trammel nets (65% in 2013, increasing on the period), otter trawls (31% in 2013, stable on the period), and gill nets (3% in 2013, decreasing on the period); in 8b trammel nets (64% in 2013, increasing on the period), otter trawls (17% in 2013, stable on the period) and gill nets (2% in 2013, decreasing on the period).
STECF notes that only approximately 40% of the total F derived from ICES assessments of sole in the Bay of Biscay is accounted for by the partial Fs derived for regulated gears from the data submitted to the EWG.

5.6. STECF EWG 14-15: Fish processing industry

Request to the STECF

STECF is requested to review the report of the STECF Expert Working Group, evaluate the findings and make any appropriate comments and recommendations.

Background

Following the 2014 DCF call for economic data on the EU fish processing sector, EWG 14-15 was requested to analyse and comment on the economic performance of the EU and national fish processing sectors between 2008 and 2012.

This year's report, in addition to providing an overview of the data, presented a more focused analysis compared to the 2013 report due to using a common methodology as well as to the availability of a longer time series. (Data collection for the processing industry started only 2006 and then changed to the DCF 2008). For this year's report the EWG provided more analytical assessments notably on the drivers, trends and aspects of policy relevance.

Despite the data limitations the increased emphasis on analytical approaches is an improvement given the major drivers and issues affecting this sector. Experts were asked to analyse the sector i.e. by markets and trade determinants by main segments of processing activities, sourcing of raw material competitiveness, market prices and consumption, certification, innovation, links with the local fishing fleet and aquaculture sector, the role of European Fisheries Fund support, female/male employment generation, strengths, weaknesses, opportunities and threats. Experts' awareness of national examples and experiences provided valuable input to the analysis.

The two main objectives of the 2014 exercise were to increase qualitative interpretation of all data outputs and to increase the usefulness of the report for DG MARE's fisheries policy development as well as for member states and the industry. At this point in time, this is limited primarily by the lack of specific enough data (e.g. (regional importance of the sector and employment, link between raw material – imported of from the EU – linking fishing fleets, aquaculture and fish processing) required to make the necessary analysis.

1. For this the quality of data remains essential: Data quality checks and data validation tools were applied by the JRC. Experts received the data tables for the national and regional analyses on the first day of the meeting, already validated where possible. Past experience suggests that some quality issues will remain (errors that can only be identified by those with specific knowledge of the data) and therefore experts were requested to check for further errors and report on these whilst carrying out the various tasks.

2. The 2014 report on the economic performance of the EU fish processing sector followed a more analytical approach and contained qualitative information and analysis on the drivers and trends in the fish processing performance and other aspects of policy relevance based largely on the scientists' expert knowledge.

The 2014 report on the economic performance of the EU fish processing sector included the following sections:

1. A summary containing key findings.
2. EU fish processing sector economic overview, including drivers and main trends based on expert knowledge. Specific sections on female/male employment and average salaries, economic performance contrasting SMEs and non-SMEs (when data is available)and productivity/employee at EU level as well as a brief summary for each national chapter were mandatory.
3. National chapters on the economic performance of the fish processing sector providing:
    1. National fish processing sector overview
        - Recent developments
        - Female/male Employment and average salaries
        - Performance (contrasting SMEs and non-SMEs)
        - Economic indicators
    2. Description of trends and drivers for change based on expert knowledge.
    3. Outlook
    4. Data Coverage and quality
    5. Investigate the medium-/long-term outlook for the investment situation in the industry,on the base of the estimation of the indicator "Future Expectations of the Industry". Using this indicator, expert knowledge can be used to compare the results for different countries and to draw some observations and conclusions about the structural developments within the processing industry. See STECF plenary report (24-28 March 2014, Brussels)

Request to the STECF

STECF is requested to review the report of the STECF Expert Working Group meeting, evaluate the findings and make any appropriate comments and recommendations.

Introduction

The report is the fifth report of its kind and provides a comprehensive overview of the latest information available on the structure, social, economic and competitive performance of the fish processing industry at the national and EU levels. The Expert Working Group was convened in Ispra, Italy 20-24 October 2014.

The key findings of the report are:

- In 2012, the fish processing sector in the EU comprised approximately 3,500 enterprises with fish processing as their main activity,
- Accounting for a total income around €27.9billion (98% of this is turnover)
- More than €6.4billion in Gross Added Value (GVA), and
- Employed around 120 thousand persons within the EU of which 55% are female

STECF observations

STECF observes that EWG 14-15 was able to address all TORs and also answered an additional request regarding the future structure of the fish processing report.

STECF also observes that the data coverage and quality improved relative to the previous report from 2013. However, due to the lack of specific expertise from some countries, a few national chapters include only a description of the data, while a description of major drivers and trends for development was not included.

STECF notes that 17 countries delivered data at a segment level for the first time. The data was reported in the national chapters and is useful for identifying differences between smaller and larger companies.

STECF observes that the 'Future Expectation Indicator' (FEI) has been provided in a dedicated section of the EWG 14-15 report and is used to infer on the propensity to invest in the sector. The FEI is calculated as net investment minus depreciation and then divided by the total asset value. For Member States that have submitted sufficient and reliable data, the trends in the indicator can be used to monitor expectations of the producers concerning future profit opportunities.

STECF observes that the current uncertainty related to the access to Russian consumers has not currently been identified by the EWG 14-15 as a major concern for the processing industry, except for a few member states (Estonia, Latvia and Portugal). However, it is most likely that it may have an even stronger impact on the processing industry, if the reduced trade continues for a long time period, and if no new markets are identified instead.

STECF observes that the landing obligation is not considered in the report which may result in increased supplies to the processing industry following its introduction.

STECF observes that many companies combine both fish trading and fish processing activities. Because companies are classified as processing in cases where more than 50% of their total revenue comes from this activity, observed developments in the processing sector (e.g. number of companies and investments), might be due to changes in the fish trade rather than real developments in the processing activities themselves.

In the current report, some analyses on import and export of sea food products are included.

STECF conclusions

STECF concludes that it is possible and useful to apply the 'Future Expectation Indicator', but that the analysis must be based on reliable data and a time series covering at least three years.

Based on the EWG 14-15 report STECF concludes that there are two options for the future reports on the status of the fish processing industry:

1. Have the report continue as a part of the STECF work program either by:
    a. continuing with the current report and data with limited relevance in relation to the CFP, but relevant for other needs (e.g. regional analysis); or
    b. expanding the current report by including data on raw material and trade, thus making it possible to analyse the entire value chain (from raw material to the consumer) including data on market development; or
2. Have the report prepared by DG MARE outside the STECF work program

STECF considers that the analysis based on the 'future expectations of the industry' indicator should be included in future reports about the processing industry. STECF observes that there are only a limited number of countries that expect a substantial growth in the sector despite the general desire by MS to expand production.

5.7. STECF EWG 14-16: Review of scientific advice for 2015 - part 3

Request to the STECF

STECF is requested to review the report of the STECF Expert Working Group, evaluate the findings and make any appropriate comments and recommendations.

STECF response

STECF reviewed, amended and adopted the draft Review of advice for 2015 Part 3, prepared by the STECF Expert Working group (EWG) 14-16 during its meeting held in Dublin, Ireland from 20-24th October 2014.

The STECF review of advice for 2015 Part 3 (STECF 14-22) summarises assessment results and advice for stocks of interest to the European Community in areas under the jurisdiction of CCAMLR, CECAF, WECAF, ICCAT, IOTC, IAATC, GFCM, NAFO, SEAFO, SPRFMO, and ICES advice on stocks in the North East Atlantic released since 30 June 2014.

The STECF review of advice for 2015 Part 1 included the latest assessments and advice for stocks in the Baltic Sea and was published in May 2014. Part 2 contained the review of assessments and advice released by ICES up to the end of June 2014 and was published in July 2013. Parts 1, 2 and 3 will be

combined and published in the STECF Consolidated review of advice for 2015, which is planned to be available by end of 1st week December 2014.

In undertaking the review, STECF has consulted the most recent reports on stock assessments and advice from appropriate scientific advisory bodies or other readily available literature, and has attempted to summarise it in a common format. For some stocks the review remains unchanged from the Consolidated Review of advice for 2014 (STECF 13-27), since no new information on the status of or advice for such stocks was available at the time the present review took place.

5.8. STECF EWG 14-17: Preparation for future data collection under revised DCF

Background

Data collection currently occurs under the Data Collection Framework (DCF)[1] and the multi-annual Union programme for data collection (EU MAP) established thereunder.[2] In line with this EU MAP, Member States are required to submit National Programmes (NP) (Article 4 of Reg. 199/2008). These NPs are set for three years (currently 2014-2016)[3] and contain the Member States' obligations to collect and provide data relevant to their region/fisheries/sectors pursuant to the EU Multiannual Programme. NPs are analysed by the STECF (independent experts) and are adopted by the Commission through a Commission Decision (Article 6). NPs can be modified if requested by a Member State and after evaluation of the proposed changes by the STECF.

Under the EMFF the Operational programs must be supplemented by a work plan for data collection (Article 21). Member States have to submit these work plans to the Commission in a specified format (Article 4(4) of Regulation (EC) No 199/2008) by 31 October of the previous year, unless an existing plan still applies. The content of those plans must be consistent with Article 4(2) of that Regulation, referring to multi-annual sampling plans, and schemes for at sea monitoring, surveys and data use. The Commission has written to Member States in 2014 to inform them that they are not required to submit a national work plan for 2014 or 2015, because the previous detailed national programme still applies and therefore no additional plans are needed. In case a WP is submitted the Commission may approve it by implementing act (Article 21 EMFF).

Under Article 7 of the DCF Regulation, Member States are required to report annually on the implementation of their National Programme. The Commission shall assess the implementation of the national programmes on the basis of an evaluation by the STECF.
The current Annual Report guidelines and standard tables were prepared in March 2013, on the basis of recommendations made by the Commission based on experience with evaluation of the Annual Reports 2011 as well as recommendations made by the STECF expert group EWG12-08 (Hamburg, 25-29 June 2012) and endorsed by STECF through a written procedure in July 2012. These revised guidelines and standard tables were reviewed by the expert group EWG 13-02 (Ispra, 11 - 15 March

1Council Regulation 199/2008 concerning the establishment of a Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the Common Fisheries Policy and Commission Regulation 665/2008 laying down detailed rules for the application of Council Regulation 199/2008.

2 Commission Decision C(2013) 5243 of 13.8.2013 extending the multiannual Union programme for the collection, management and use of data in the fisheries sector for the period 2011-2013 to the period 2014-2016

3 C(2013)5568 Commission Implementing Decision of 30.8.2013 extending the national programmes for the collection of primary biological, technical, environmental and socio-economic data in the fisheries sector for the period 2011-2013 to the period 2014-2016

2013). Since then, additional recommendations have been made in STECF EWGs regarding how to further improve and simplify the guidelines and standard tables. On the basis of an ad hoc contract, the Commission has prepared a draft update of the guidelines and standard tables, which incorporates any recommendations that were straight forward and agreed to in previous EWGs.

The Terms of Reference for EWG-14-17 were:

1. Revision of the Annual Reports guidelines and standard tables

The EWG14-17 is invited to review the draft revised Annual Report guidelines and template and improve it where necessary. In addition, a list of possible additional updates has been compiled, which the EWG14-17 will be asked to decide upon so the guidelines and standard tables can be finalized after the meeting.
The focus of the exercise should be on simplification.

2. Preparation of a template for National Work plans for data collection

The EWG14-17 should help developing a template for these national work plans in view of a future Commission Decision. These should contain complementary information to that which Member States will be including in their European Maritime and Fisheries Fund Operational Programmes4, including:
a) a detailed description of the procedures and methods to be used in collecting and analysing data and in estimating their accuracy and precision.
b) the international cooperation and regional collaboration arrangements; including bilateral agreements concluded to achieve the objectives;
c) how and when data will be made available to end-users.
The focus of the exercise should be on simplification.

Request to the STECF

STECF is requested to review the report of the STECF Expert Working Group meeting, evaluate the findings and make any appropriate comments and recommendations.

Observations of the STECF

STECF observes that, according to the Commission requirements, the meeting of EWG 14-17 took place in two parts: in the first part, the EWG was asked to update the template and guidelines for Annual Reports in terms of 'short-term updates'. In the second part of the meeting, the EWG was asked to reflect on a longer-term perspective, dealing with more fundamental changes to the Annual Reports and, in parallel, reflect on what information should be included in future National Work Plans.

As far as the proposals for short-term changes for Annual Report formats and in line with the simplification request by the Commission, the EWG 14-17 was required to review the work done by an expert contracted ad-hoc by the Commission prior to the meeting with the aim to compile a list of main short-term changes to the Annual Report guidelines and tables (this list was compiled based on previous STECF meetings including EWG 14-07). STECF observes that the EWG 14-17 was also requested to revise and propose a solution on the outstanding questions on changes addressed by the ad-hoc expert. Based on this, EWG 14-17 prepared revised guidelines and standard table files with

4 See Draft template and guidelines on the content of the EMFF operational programme 2014-2020 http://ec.europa.eu/fisheries/reform/emff/doc/03-emff-op-template-and-guidance_en.pdf

traceable changes in order to provide the ad-hoc expert with clear information on where the changes have been made, as it is up the expert to produce the final version of the standard tables and guidelines for MS.

When dealing with longer-term perspectives for National Work Plans (NWPs) and Annual Reports, STECF observes that the EWG 14-17 faced the problem that a proposal for a revised DCF and corresponding Implementing Acts is not yet available. Therefore, the discussions and ideas on National Work Plan elements and on improved Annual Report compilation only provided first hints on a way forward, aiming at simplification and improved use of the information, compared to the current DCF system.

As far as the NWP, taking into account that the NWPs are designed to be supplementing documents of the Operational Programmes (to be submitted by MS under the EMFF system for the period 2014-2020), EWG 14-17 considered that it would be advisable that they would be implemented as multi-annual Plan to avoid annual evaluations. However, for sake of flexibility and especially to respond to possible changes in end-user requirements, it should remain possible for MS, when drafting the NWP, to deal with annual changes in data collection without needing to update the overall NWPs. To this aim, EWG 14-17 suggested that the NWPs would contain two different parts: a static part defining long-term elements such as data collection and data quality assurance methods, and a flexible part, reflecting short-term adaptations such as sampling intensities and responsive actions from regional recommendations.

As far as the long-term perspectives for Annual Reports, since the detailed format and contents of National Work Plans are not defined yet, STECF observes it was premature for EWG 14-17 to appropriately address this part of the ToRs. Nevertheless, EWG 14-17 addressed this item and has found that ideally, most of the information needed on fleet activities, conducted sampling etc. needed for the compilation of Annual Report can be generated from existing (or future) databases, regional or supra-regional.

Indeed, STECF observes that EWG 14-17 has done a good work on addressing the use of existing databases (and the proposal of future ones) for the storage of fisheries information and intended/conducted sampling for improving the compilation process of National Work Plans and Annual Reports by MS. EWG 14-17 has also provided a graphical representation of the advisable information flow, including details on the storage and exchange of information, for the compilation of NWP and AR.

The EWG 14-17 briefly described existing databases for the various data types (economic database, survey database, biological data bases). Furthermore, EWG 14-17 has carried out an exercise to show how some tables of the AR, e.g. the economic data standard tables (III.B.1 to III.B.3), can be easily derived and compiled by using data provided by MS within the Fleet Economics Data Call. In order to better investigate this possibility, EWG 14-17 suggests to implement some changes in the next Fleet Economics Data Call (January 2015) and ask MS to adhere on a voluntary basis to this test. If adhering, they will be asked to provide one more table including relevant information of the related tables of the NP (the suggested table is practically identical to table III.B.1 of the NP).

STECF observes that the EWG 14-17 has thoroughly discussed current data transmission requirements and timing between MS and end-users under the data collection system.
EWG 14-17 has listed the main data calls/end-users and provided detailed information on the timing (deadlines), if a database for the storage of this data exists or not, and the main data sources.
STECF observes that there is a strong need for simplification in the data transmission flow under the DCF system between MS and the main end-users (mainly RFMO). Furthermore, the legal basis for the various data requirements (Control Regulation, RFMOs etc.) is in several cases not in line with current DCF requirements. Thus, the DCF requirements need to be harmonised with these requirements. With regard to changing end-user requirements, STECF has previously advised (most recently in STECF-14-02) that these be discussed and agreed at the regional level before amending DCF requirements.

Conclusions of the STECF

STECF concludes that EWG 14-17 have adequately addressed the ToRs assigned and listed in the backgrounds section.

As far as the work on short-term changes made by EWG 14-17, STECF concludes that the proposed set of standard tables have been produced in compliance with the aim of simplification, as requested by the Commission, as they contain several suggestions for deletions of redundant information and clarification on issues that have caused confusion or uncertainty on reporting requirements in the past.

As far as the long-term perspective, STECF concludes that the preliminary work done by EWG 14-17 fully addresses the request of simplification. In particular, it fully responds to the requirements in terms of substance (simplifying the substance of the standard tables), standardisation (possibility to use standards for completion of both NWP and AR) and format (how some info for future ARs could be generated automatically).

STECF concludes that the dynamic system foreseen by EWG 14-17 for data exchange and storage (scenario on NWP and AR information flow) is a sensible system to pursue simplification and avoiding duplication of data submissions by MS. Indeed, this system could be able to decrease the burden on MS in preparing the NWP and at the same time experts involved in the review process as well as end-users would receive the information in a more standardized way, which will give a general overview on sampling activities and simplify their work as well. This system will also help in harmonising the data transmission flow and in solving problems related to the different timings of data requirements by the main end-users.

STECF endorses the proposed guidelines and standard tables prepared by EWG 14-17 and recommends that the finalisation by the ad-hoc expert of the guidelines and the standard tables will happen as soon as possible (before the end of 2014) in order to provide Member States with new reporting formats and guidance to be applied for the forthcoming reporting period (Annual Report 2014 to be released for the end of May 2015).

STECF endorses the proposal of EWG 14-17 to test the feasibility of using the Fleet Economics Data Call for filling Annual Report tables and suggests that this test be implemented in the next Fleet economic Data call to be launched in January 2015. Taking into account that the participation of MS is proposed to be voluntary, STECF considers that the necessary information for MS to decide if they participate in this test or not should be given in the official letter sent to DCF national correspondents when announcing the data call.

STECF endorses the proposal for a future implementation of a dynamic and automatic system for data exchange using the same data format between MS. A common storage of data (at regional level, for a group of regions, or at European level) as well as common reporting functionalities will allow to access to the metadata required for the evaluation of the NWP. Taking into account that this system strongly relies on the regional databases, that some of these databases are already in place but in some cases they should be still developed, STECF notes that further development in these areas is necessary.

STECF considers that the reporting requirements that MS have to comply with for different data calls (STECF EWG, RFMO, ICES, EUROSTAT, etc….) and in relation to the Control Regulation should be harmonised in order to avoid duplication of work to process data to different formats.

5.9. STECF EWG 14-20: Reporting needs on fishery resources under new CFP

Request to the STECF

STECF is requested to review the report of the STECF Expert Working Group, evaluate the findings and make any appropriate comments and recommendations.

STECF comment

The EWG 14-20 report was not finalized by the time of the plenary meeting. STECF intends to review the report by written procedure during the 1st week December 2014 and release thereafter.

6. ADDITIONAL REQUESTS SUBMITTED TO THE STECF PLENARY BY THE COMMISSION

6.1. Selectivity in the Celtic Sea

Background

STECF have undertaken an ad-hoc contract to examine the impact of potential recruitment events in the Celtic Sea and to consider the impact on cod, haddock and whiting catches that would result from particular selectivity changes based on current Union and national measures and also taking account recent recommendations from the industry of strengthening these measures.

In this context STECF are asked to consider the effectiveness of measures under Regulation (EU) 737/2012 and the proposal from the European Association of Producer Organisation's (EAPO) which contains specific measures to increase the 120mm square mesh panel for the TR1 and TR2 fleet operating in areas west of 8 degrees. In addition, there are also national proposals to apply the proposed increased increase in panel mesh size across the entire Celtic Sea. Namely, EAPO proposals stipulate that French vessels would fit a square mesh panel of increased mesh size in the entire area where regulation 737/2012 applies. However, this remains to be adopted via national measures. STECF are also asked to consider the implications of this measure.

There is no formal management plan or mixed fisheries advice yet agreed for the Celtic Sea. In exploring the various recruitment scenarios against possible selectivity improvements, STECF should note that the Commission's objective is to maximise the long term benefit of any recruitment pulses.

As cod escape behaviour differs from that of haddock and whiting, STECF are asked at Plenary to include consideration of additional selectivity options to cater for the specific behaviour of cod within trawls.

The current catch advice for Celtic Sea cod is based on an assumption of average (GM) recruitment. Anecdotal information suggests that recent recruitment is well above the GM assumption. The 2014 Q4 surveys will provide up to date recruitment estimates and these may change the perception of stock status and therefore warrant a revision of the catch advice for 2015. The ad-hoc contract provides a range of plausible stronger recruitment scenarios for Celtic Sea cod and haddock in ICES areas VIIb-k. When the Q4 survey indices are available, this will allow for the rapid evaluation of the 2014 autumn surveys and the potential impact on current catch advice. The Commission notes that the survey information and assessment should still be subject to the routine review processes of the scientific advisory bodies.

Request to the STECF

STECF is asked to consider the report provided by the contractor and to comment as necessary on the report.

STECF is also requested to consider the mixed fishery analysis for the stocks of cod, whiting and haddock in the Celtic sea provided by the UK. This analysis is based on a FCube model which has been adopted by ICES as the basis for the North Sea mixed demersal fisheries advice. Specifically, STECF is asked to consider:

- the appropriateness of the use of this model for the Celtic sea and the implications of each of the option presented;
- to identify what would be the impact on future stock development of Celtic Sea cod, haddock and whiting if the various option presented by this analysis were followed;
- to identify the potential application of this approach under a range of plausible recruitment scenarios.

In addition STECF is asked to evaluate the potential impacts of selective gears tested by the UK authorities aimed at improving haddock selectivity in trawls (BACOMA window; T90 cod-ends and SELTRA trawls). In particular STECF is requested to assess their effectiveness of these gears in avoiding unwanted catches of smaller haddock and to assess their impact on the other components of the mixed fisheries catch. Using the information provided, STECF is also requested to comment on the economic impacts of these measures and to comment on their utility in the context of the forthcoming landing obligation. STECF is asked to comment further on the potential for spatial and temporal patterns in the behaviour of haddock to be used to meet the objective of avoidance of unwanted catches.

Background documents can be found on: https://stecf.jrc.ec.europa.eu/plen1403.

STECF observations

STECF has first summarised the findings of the three individual pieces of work relating to Celtic Sea fishery management: i) the ad hoc contract report; ii) The FCube mixed fishery analysis; iii) The new selectivity trials carried out by UK. STECF has then drawn together the key observations in conclusions which provide a global overview of the expected situation in the Celtic Sea gadoid fishery in 2015.

i) Report of ad-hoc contract to examine the impact of potential recruitment events and selectivity changes in the Celtic Sea

The remit and TORs provided for the ad-hoc contract on the selectivity in the Celtic Sea were as follows:

Background

In the Celtic Sea cod are mainly caught together with whiting, haddock as well as in other mixed fisheries with other species such as *nephrops*. In such fisheries, maintaining catches for all species at F_{MSY} levels for differently evolving stocks with current selectivity and fishing patterns is therefore difficult. In addition to this, gadoid species such as cod, haddock and whiting stocks are characterised by highly variable recruitment patterns. The stocks and catches can increase rapidly in response to good recruitment and decrease rapidly during times of poor recruitment. This pattern is a side effect of these fisheries being recruitment-driven as most catches concern the younger age classes. These pulses in recruitment are difficult to manage without an adaptive approach to take account of the differing stock structure. In periods of high recruitment the increased number of small fish in the fishery can lead to high discarding. Such a situation has been observed in the Celtic Sea and is further exacerbated by the fact that the cod stock in this area has higher growth rates and matures earlier than other cod stocks. This means juvenile cod reach a size at which they are retained by trawls or seines very quickly.

The scientific catch advice from ICES for 2015 is for substantial decreases in cod and haddock (-41%), while whiting is currently fished at or below F_{MSY} and the advice is for a 4% decrease. However, there is evidence from scientific surveys and from anecdotal information from fishermen during 2014 that there is high recruitment of cod and haddock which will enter the fisheries in 2015. Conformation of the extent of any recruitment events will not be confirmed until December 2014 when latest surveys data become available but given the high growth rate of cod, it is likely these recruiting fish will be impacted by fisheries early in 2015. Given the mismatch in available fishing opportunities compared to actual catch levels (landings + discards) this potentially will result in very high discarding of cod in the 1st quarters of 2015. For haddock, the slower growth rate makes it is likely that the influx of juvenile fish will not be seen in the fisheries until later in the year but nonetheless past history of similar high recruitment events indicate that discarding of haddock will also be very high unless management steps are taken.

In previous years (2011, 2013) mismatches in selectivity, fishing patterns and quotas have resulted in the discarding of juvenile fish. Additional selectivity measures were introduced in late 2012 to improve the selectivity patterns in the main Celtic Sea demersal fisheries[5] were taken (use of Square Mesh Panels) but these seemed to have delivered only limited reductions in discard rates. Due to the delay in agreeing these measures the actual contribution of the high recruitment to spawning biomass was limited with little benefit to the fleets operating in the area of the full economic potential of recruiting fish into the stock. It is imperative to try to avoid the same outcome with these latest recruitment pulses.

STECF advised on selectivity options for the protection of cod in the Celtic Sea fisheries in 2013 (STECF PLEN 11-03). Under a Council Statement issued in December 2013, Member States committed to examining and implementing further selectivity measures to achieve a reduction of catches of juvenile haddock by July 2014. Subsequently there has been further selectivity trials undertaken and limited introduction of additional measures (*i.e.* Ireland have recently proposed voluntary use of a 120mm SMP west of 8^0 W- the industry (EAPO) might adopt a similar potential mandatory action for 2015 (their resolution is expected by the end of September 2014). However, in light of the advice for 2015 for cod, haddock and whiting and the indications of high recruitment for cod and haddock there is an urgent need to revisit the measures in place as it is unlikely they will protect the incoming year classes. In addition the ICES advice for 2015 does not include the recent selectivity changes nor has it yet included the prospective 2015 recruitment so the current advice for 2015 may need updating. In addition the measures taken so far have been targeting principally at protecting haddock and whiting stocks. However, these measures are unlikely to yield many benefits for cod given the differences in their morphology and behaviour.

5 Commission Implementing Regulation (EU) No 737/2012
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:218:0008:0009:EN:PDF

Request to STECF

Given the new information coming on stream on recruitment and also that there is a need to assess additional technical measures or alternative management approaches that will minimise discarding of juvenile fish recruiting into the fisheries, STECF is requested to:

1. Provide a range of possible catch options based on fishing at F_{MSY} in 2015 based on a range of plausible stronger recruitment scenarios for Celtic Sea cod and haddock in ICES areas VIIb-k. STECF should also provide catch options consistent with the F changes advised for haddock and whiting and plausible stronger recruitment scenarios for cod. A final catch forecast should be provided as soon as the 2014 survey data become available.

2. Evaluate the potential impacts of improving the selectivity patterns in the Celtic Sea on the catch advice for cod, haddock and whiting. The improved selection patterns to be evaluated should be consistent with the following technical measures:

    a. 120mm square mesh panel for the TR1 and TR2 fleet operating in areas west of 8 degrees (IE proposal and EAPO's, if available)

    b. 120mm square mesh panel for the TR1 and TR2 fleet deployed in all areas in the Celtic Sea.

    c. 120mm minimum cod-end mesh size deployed in all areas in the Celtic Sea for vessels not targeting *nephrops*.

STECF is asked to estimate the possible economic impact on catches of cod, haddock and whiting that would result from a change to these selectivity patterns.

3. In light of any recent developments, STECF are asked to appraise their previous advice for the TR2 and TR1 fleets in the Celtic Sea (STECF PLEN 11-03). To this end, the STECF is requested to:

    a. Map the catches of the three stocks concerned. The map should clearly display for recent years (at least 2008 through to 2013) (i) the relative magnitude of catches for the three stocks concerned and (ii) the age structure of the catches. The legend of each map should indicate the levels of R and SSB for the stocks and the year concerned.

Building on point 2 and 3.a. above, identify possible selectivity or spatial options with the objective of ensuring a significant decrease in discard rates of cod, haddock and whiting.

A detailed report was provided for STECF to consider. The contractors should be commended on their efforts to address each of the ToR and have provided helpful output where available data allowed. As requested the report provides catch options (ToR 1) for cod for 2015 based on a range of possible recruitment scenarios in 2014 but leaving all other settings the same as were used by WGCSE in the assessments underpinning 2014 ICES advice. The report includes the R code used to conduct the forecasts. The ToR also asks specifically for cod forecasts consistent with fishing haddock and whiting at their F_{MSY} values. The report details these in tabular form and also includes graphical information covering a full range of fishing mortalities. The nature of the tabular and graphical presentations provide clear and comprehensive information on possible landings and SSB outcomes. Early indications are that recruitment (1 year olds in 2014) is higher than in recent years but this will not be verified until surveys take place later in the year – too late for updates of the ICES assessment advice to be helpful in taking management decisions. Since cod grow fast, these fish have the potential to enter the fishery in 2015 and could end up being discarded if advice is not adjusted to take the recruitment into account. The information provided in the report should help to avoid this problem occurring.

STECF notes that for the case of the cod forecast where F is set so as to achieve MSY for haddock, there is some concern that the assumed 2014 intermediate year F for haddock (used as a basis from which to calculate the required change to reach F_{MSY} and therefore the resultant F for cod), could be

underestimated, as it would imply landings in 2014 well below both the TAC and the observed landings in 2013. A more appropriate F2014 for haddock (based on the recent upward trend in F) is likely to result in lower forecast cod landings in 2015 but this could not be quantified at the STECF meeting.

Recruitment of haddock in 2014 also shows signs of improvement (as age 0 fish) but these will mostly not enter the fishery in 2015. On the other hand, recruitment in 2013 was also well above average and is already included in the model. Here, a sensitivity of forecasts to variation in the strength of the 2013 year class was performed and the outcomes tabulated for three fishing mortality scenarios (F_{MSY} for haddock, and F consistent with achieving F_{MSY} for cod and for whiting). Again, STECF draws attention to the issue of potentially underestimated F being used for the 2014 intermediate year. The report points out that the surveys later in 2014 will not immediately provide further information on the 2013 year class since ageing of fish will not take place until 2015. A table is also included showing exploratory analysis using an alternative F_{MSY} for haddock described in a separate working paper by Gerritsen and Lordan provided to STECF. This estimate includes over quota discards and is likely to be more appropriate under the landing obligation.

STECF considers that the approaches used to assess the impacts of three different technical measures proposals (ToR 2) were appropriate and made use of best available information. The methodology is clearly set out and tables and figures illustrate the input parameters used to derive length compositions and selection ogives. The report also includes 'on-board' selection ogives reflecting fishermen's sorting behaviour as recorded by observers. The request was complicated by the requirement for information specific to different spatial options in two of the proposed technical measures. Landings distribution data from the most recent STECF effort EWG was used to provide proportions in the areas to the east and west of 8 degrees west. STECF considers this to be appropriate.

To conduct the impact of each of the proposals, the analysis essentially compares expected catches using the new technical measures with those expected using current gears. The report is careful to point out and discuss that it is difficult to predict absolute effects owing to changes in population structure through time and emphasises instead the value of understanding relative effects. The inclusion of the on-board selection ogive is illuminating, particularly for haddock, showing selection to be well above that of the gear selection. This points to the possibility of moving further with technical measures, and adopting even more selective gears, an approach which would be beneficial in the context of meeting the landing obligation.

The report discusses the theoretical benefits from the different measures indicting that the proposed TR2 change offers only modest improvement (L50 increased by 5%) while the increase of the overall codend mesh in the TR1 fleet is more promising and increases L50 by 14%. The report also explores potential benefits of the different proposals at the stock level. Owing to the current distribution of fish, predominantly to the east of 8 degrees west, the proposal which limits gear change to the west of this line is not expected to be very beneficial at overall stock level compared to applying the measure across the Celtic Sea. The report is careful to point out that the experience at individual vessel level is unlikely to be the same as the overall effect. The most beneficial of the options in terms of reducing discards is the use of the 120 mesh throughout the codend leading to reductions of 28% 47% and 45% (for cod, haddock and whiting respectively). The measure also leads to more substantial reductions in landings (2%, 14%, 15%). The report points out that other species are not considered and also that selectivities would imply changes to F_{MSY} values (and hence lead to revisions in the earlier forecast).

STECF notes that in several places the report makes a general observation that reductions in discards arising from improvements in selectivity will result in increased landings. There are several aspects in this. A change in selectivity which reduces the catch of small fish and the quantity discarded also means those fish are not immediately available to be landed either – they are simply not caught. Over time the fish that escape are likely to grow and those surviving may eventually contribute positively to landed yield (yield per recruit analysis would quantify the effects). In the immediate term, the suggestion in the report to use the original catch advice based on the old selection pattern, but with a lower discard ratio and therefore allowing for greater landings, should not be followed; a new short-term forecast should be run with the new selection pattern. Moreover, as F_{BAR} is an average value over several ages, reducing discards, and thus F, on the younger ages implies mathematically that F on the older ages will be set at a higher level to reach the same average mortality. The magnitude of the impact of this depends on the characteristics of each stock (growth rate, selection and discards ogives, age range of F), but this is an important generic feature. It is important that F_{MSY} values are regularly adjusted to variations in growth and selection patterns.

A fairly basic analysis of the financial implications of the various options was carried out and losses implied by the reduced landings were considered fairly moderate (10% or less for the most selective measure, 120mm codend).

The report includes an explanation as to why it was not possible to provide spatial information on the distributions of cod, haddock and whiting catches or the distribution of different age groups in those catches (ToR3). STECF agrees that the very limited observer data precludes any opportunity to construct meaningful catch distributions. STECF notes that the report makes use of the landings distribution by statistical rectangle from the STECF effort EWG and supplements this with maps based on Irish landings information linked to international VMS effort distribution. STECF considers this to be helpful in the absence of catch data. Results suggest widespread distribution of all species with considerable overlap. Some areas can be identified where whiting or cod are more predominant but owing to the lack of fine scale catch information the scope for effective spatial measures appears to be fairly limited.

ii) Fcube mixed-fisheries analysis of Celtic Sea gadoid fisheries

The Fcube model has been developed to assess the short-term implications of implementing different fishing opportunities for different stocks, when the stocks are being caught simultaneously within mixed-fisheries but when the fishing opportunities are not correlated which each other. The objective is to estimate the potential amount of over-quota discards for a given stock, if fisheries for other stocks catch more of this stock than can be legally landed. The model has been developed for the North Sea demersal fisheries where separate management plans exist for the individual stocks caught in mixed-fisheries.

The situation in the Celtic Sea gadoid fisheries resemble in many points the situation in the North Sea, with the three stocks being largely caught together but being managed individually, resulting in uncorrelated variations in annual fishing opportunities set for the stocks. The level of information available is also comparable with the North Sea, with analytical stock assessments, short-term forecasts and fleet-based catch and effort time series being readily available. In consequence, STECF considers that the use of the Fcube model is appropriate for the Celtic Sea gadoid fisheries. But many more species might be included in the future for a more complete mapping of the technical interactions.

STECF notes that both the single-stocks and the Fcube forecasts for the three stocks assume landings levels in 2014 being lower than the agreed TAC, and, for haddock and cod, being also lower than 2013 landings. As noted above, and as also commented in the stock review, higher than assumed landings in 2014 would result in lower SSB estimates in 2015. These uncertainties will however not affect the general patterns in the Fcube forecast.

Six Fcube scenarios were presented, representing the range of plausible mixed-fisheries constraints ("min","max","status_quo", "cod-cs","had-cs","whg-cs"). The "min" and "had-cs" scenarios provide the same results, and the "max" and "whg-cs" are also equivalent, indicating that haddock is the most limiting stock in 2015, and that whiting is the least. Assuming effort and catchability patterns in 2015 being equivalent to those in 2013, the effort by fleet required to catch the whiting 2015 TAC advice would be more than three times higher than the effort required to catch the haddock 2015 TAC advice, indicating a major unbalance in the fishing opportunities for the three gadoid stocks.

STECF notes that at the time where STECF met, the Commission had already published its proposal for the TAC 2015 in the Celtic Sea (COM(2014) 670 final , Annex 1A, published on October 28th, 2014). The TAC proposal for Celtic Sea cod is based on the ICES catch option following the haddock MSY advice, suggesting a TAC reduction of -64%, instead of the -41% suggested by the single-stock advice (cod landings 2015=2471 t). This value was provided by ICES using a simpler calculation procedure than Fcube, although very similar in its concept and objective (aligning fishing opportunities for all stocks to the reductions needed for the most depleted stock). Indeed, the figures are very close to the outcomes of the Fcube "min" scenario (cod landings 2015=2258t in Fcube "min"). Similarly, the Fcube "max" scenario corresponds well to the "whiting MSY" scenario provided by ICES (cod landings 2015 = 5808 t in the whiting MSY scenario, and 6030 t in the Fcube max scenario). The corresponding levels of effort to catch the reduced TAC in the "min" scenario under current catchability are around 60% lower than the effort in 2013. This scenario leads to F in 2015 much below Fmsy for cod and whiting, and SSB above $MSY_{Btrigger}$ for the three stocks. In comparison, the "status quo" scenario (effort constant at 2013 level) leads to F above F_{MSY} for cod and haddock, and SSB below $MSY_{Btrigger}$ for cod.

The Fcube results are presented under the conservative assumption of geometric average recruitment for the three stocks in 2014 to 2016. No alternative scenarios with different recruitment assumptions were presented. But because of the similarities between the Fcube scenarios and the ICES MSY scenarios, the applications of Fcube under alternative recruitment can be approximated using the alternative catch from the ad-hoc contract analysis commented above. Higher recruitment would lead to higher landing advice and higher future SSB.

iii) Selectivity

STECF was asked to evaluate the potential impacts of selective gears tested by the UK authorities aimed at improving haddock selectivity in trawls (BACOMA window; T90 cod-ends and SELTRA trawls). The STECF response complements and revises the results provided in the report by Catchpole et al. (2014) on the following trials :

1. Testing 100mm square mesh panels (Bacoma) in the cod-end (two experiments undertaken). This design demonstrated a **72-79% reduction** in haddock catches).
2. Testing 200mm diamond-mesh escape panels in the wings, square and back sections of the trawl (one experiment undertaken). This design demonstrated a **22% reduction** in haddock catches.
3. Testing square mesh panels (112mm and 155mm) in the body of the trawl (four experiments undertaken). This design demonstrated a **7-64% reduction** in haddock catches.

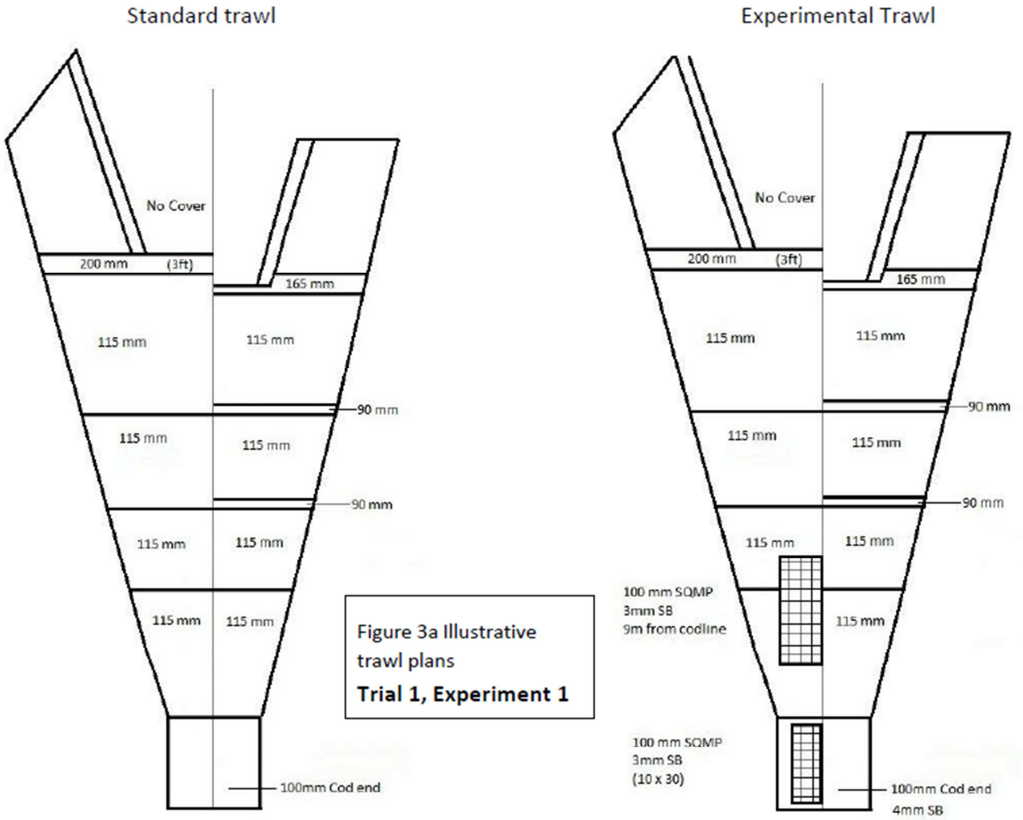
The results provided by Catchpole et al. (2014) were cross-checked and expanded by running a new catch comparison analysis using the software tool SELNET on the raw data provided by the UK. Information about the SELNET software can be obtained by consulting Sistiaga et al. (2010), Eigaard et al., (2011), Frandsen et al. (2011), Wienbeck et al. (2011), Madsen et al. (2012), Herrmann et al. (2012) and Sala et al. (2011; 2015). SELNET offers a variety of size selection models and methods for analysis; the present analysis is based on double bootstrap technique.

The modelled proportion *(r)* of the codend catch in the experimental trawl *(C_{exp})* and the catch in the traditional trawl *(C_{tra})* can be expressed as:

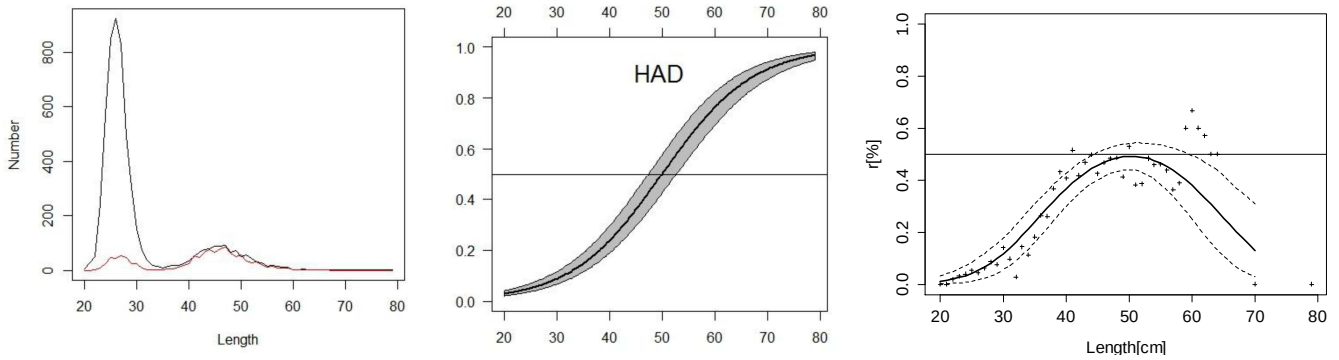
$$r = \frac{C_{exp}}{C_{exp} + C_{tra}}$$

Interpretation: a value of 0.5 indicates an even split between the experimental- and the traditional trawl, whereas a value of 0.75 indicates that 75% of the total fish at that length were caught in the experimental trawl and 25% were caught in the traditional trawl. Cross points are pooled experimental proportions and the dotted lines around the mean catch ratios curve (bold lines) represent the 95% confidence regions.

Substantial differences between the current models and those reported in Catchpole et al. (2014) have been found for some species in some trials and experimental designs (see from Figure 6.1.1 to 6.1.7Figure 6.1.1). They are listed below for each Trial (T) and experimental design (E). Main differences were observed in the extrapolation and interpretation of results at both ends of the length distribution, where the number of fish caught is limited and confidence intervals are wide. Where the results differ between both studies, the conclusions by Catchpole et al. (2014) should be taken with care. Additionally, STECF carried out the same catch comparison methodology on whiting (Figure 6.1.8).



Haddock



Cod

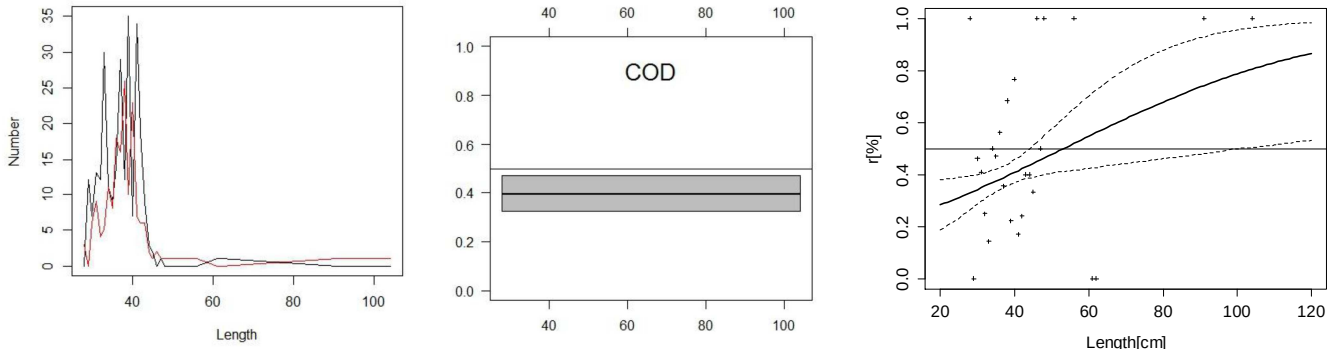


Figure 6.1.1. Trial 1 - Experiment 1.

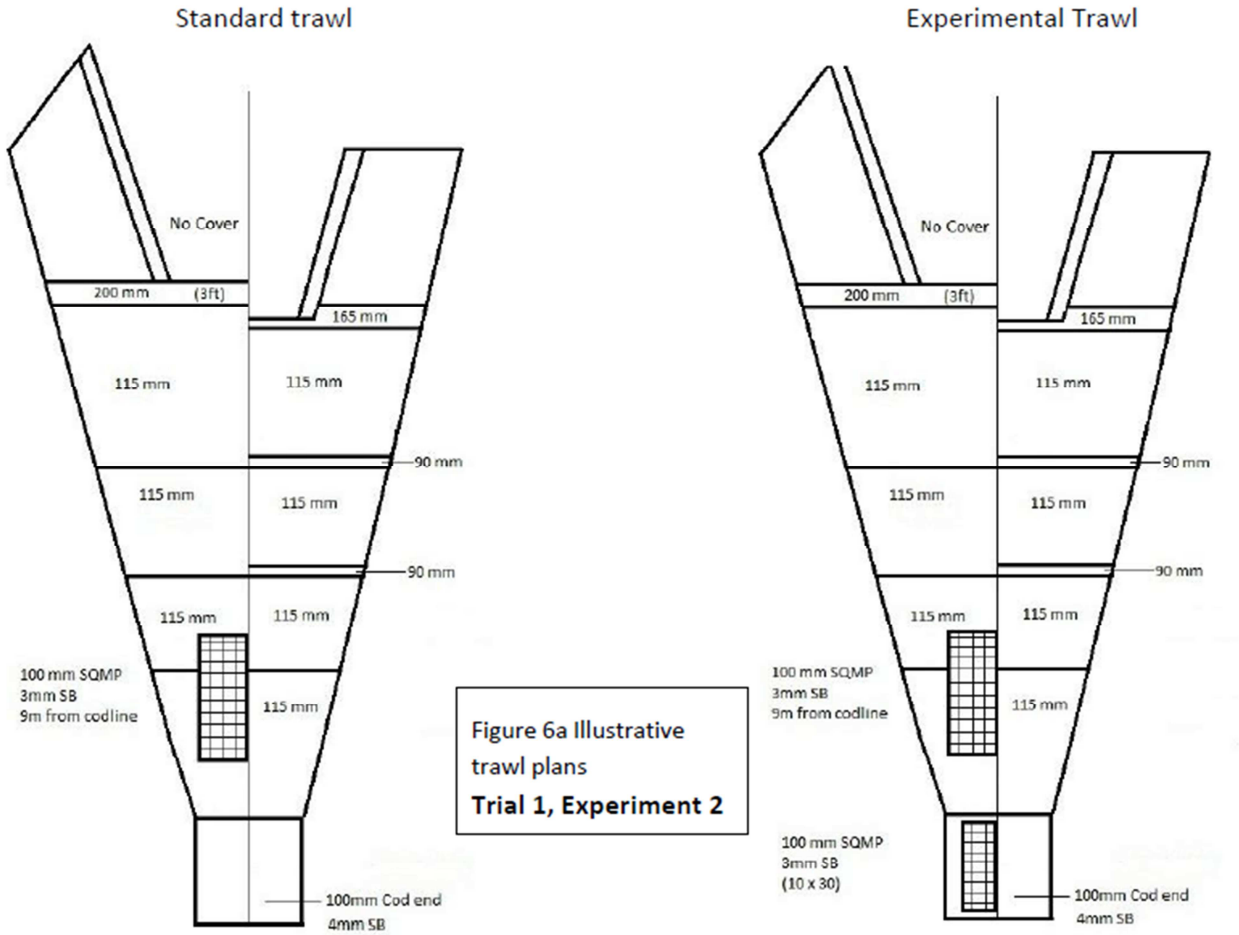
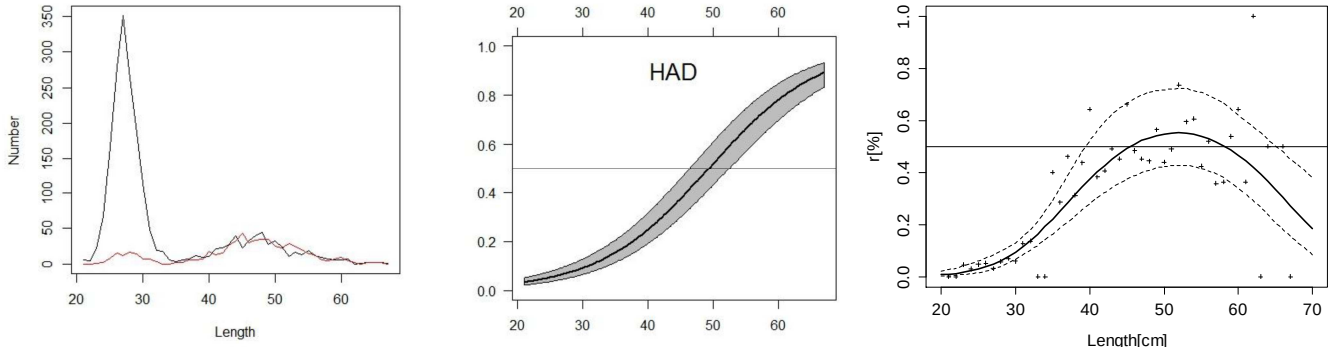


Figure 6a Illustrative trawl plans
Trial 1, Experiment 2

Haddock



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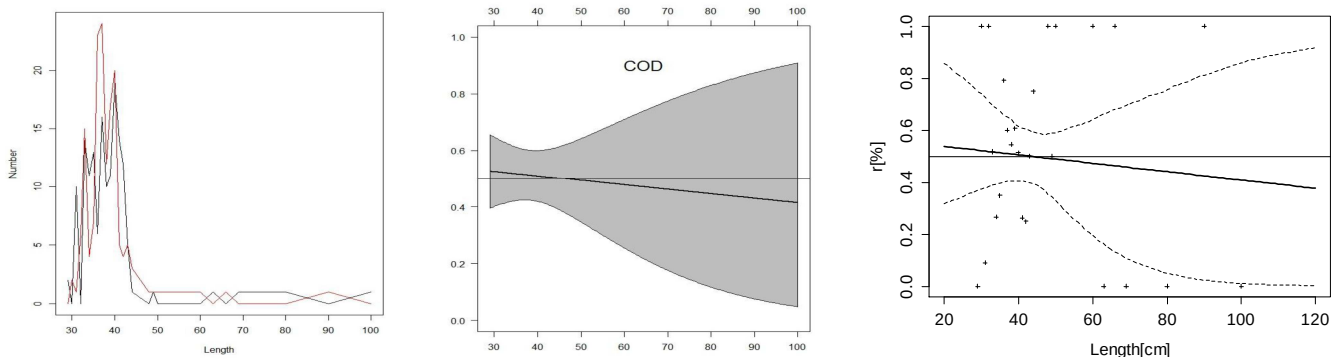
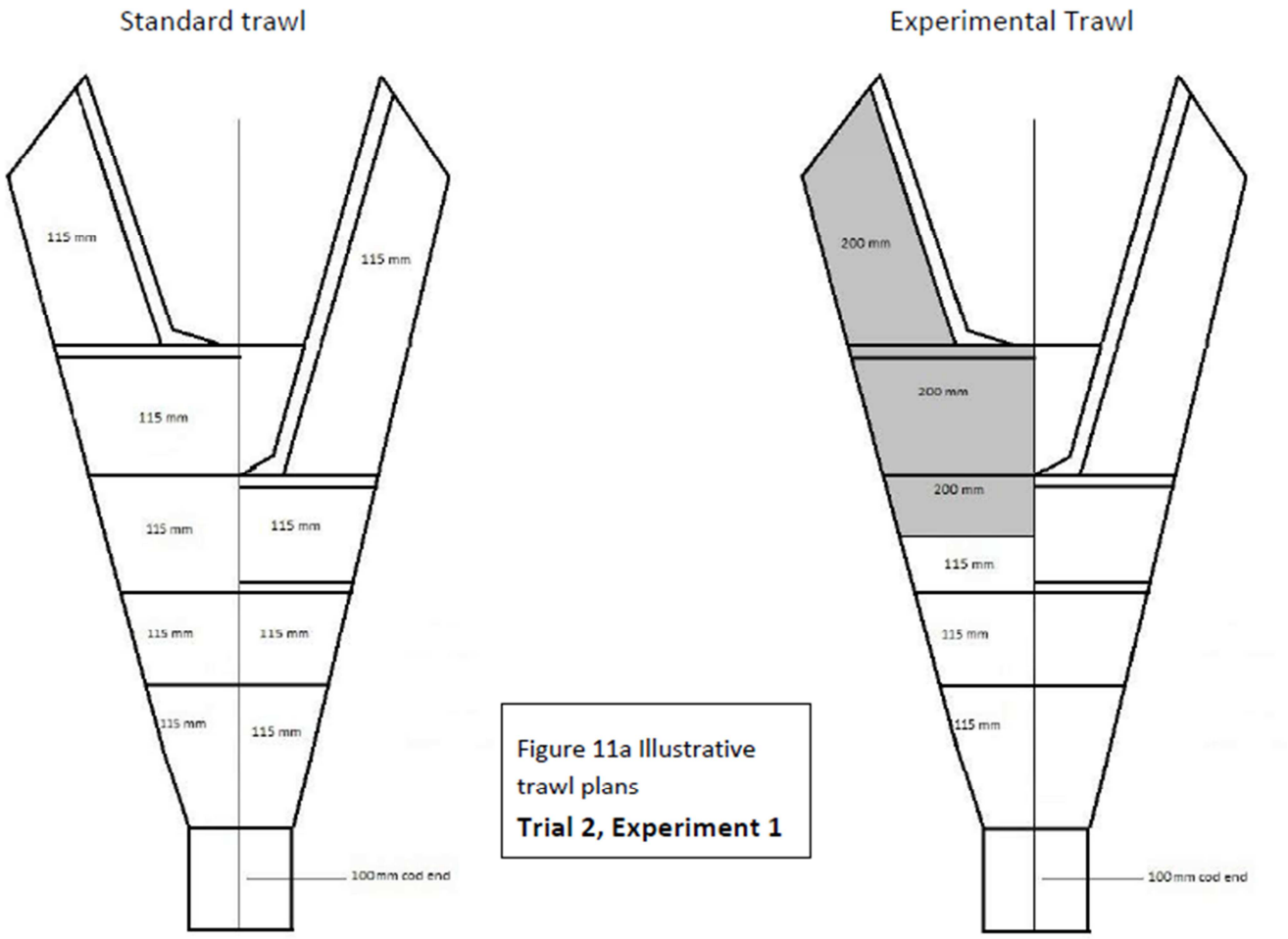
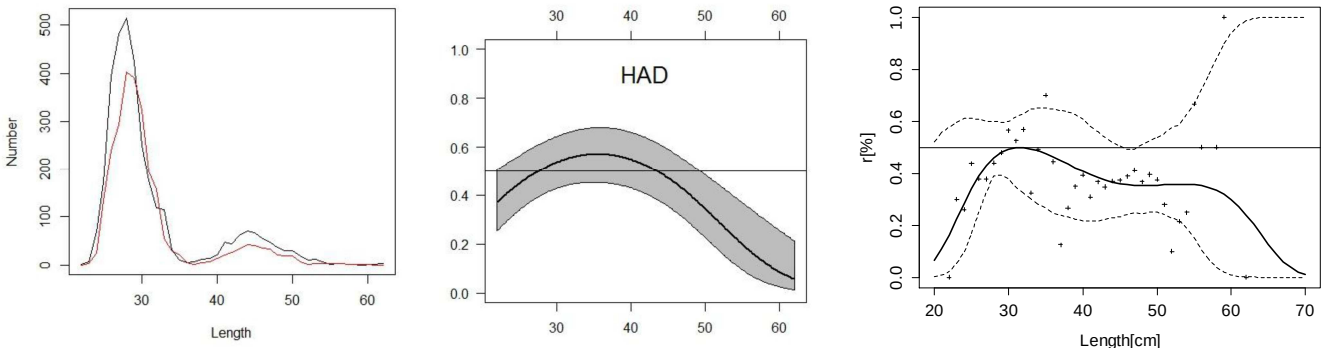


Figure 6.1. 2. Trial 1 - Experiment 2.



Haddock



Cod

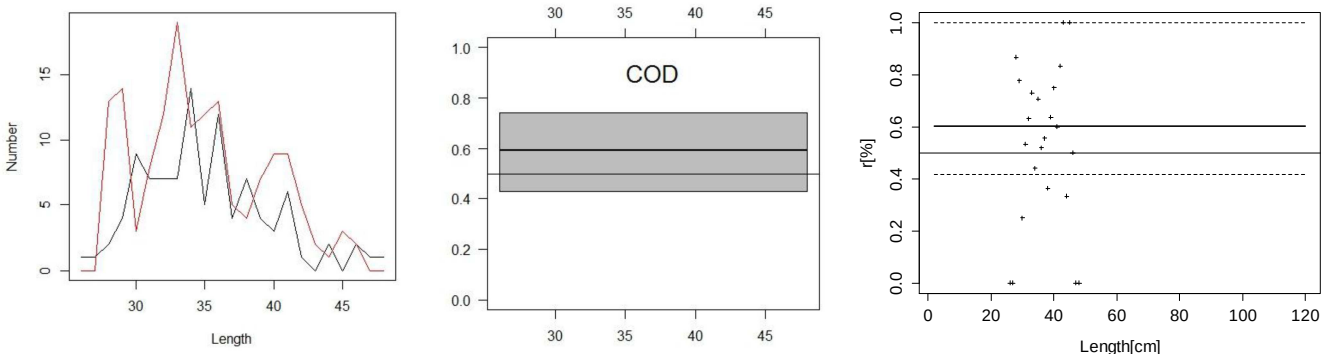


Figure 6.1.3. Trial 2. 200 mm diamond mesh in wings, square and back sections.

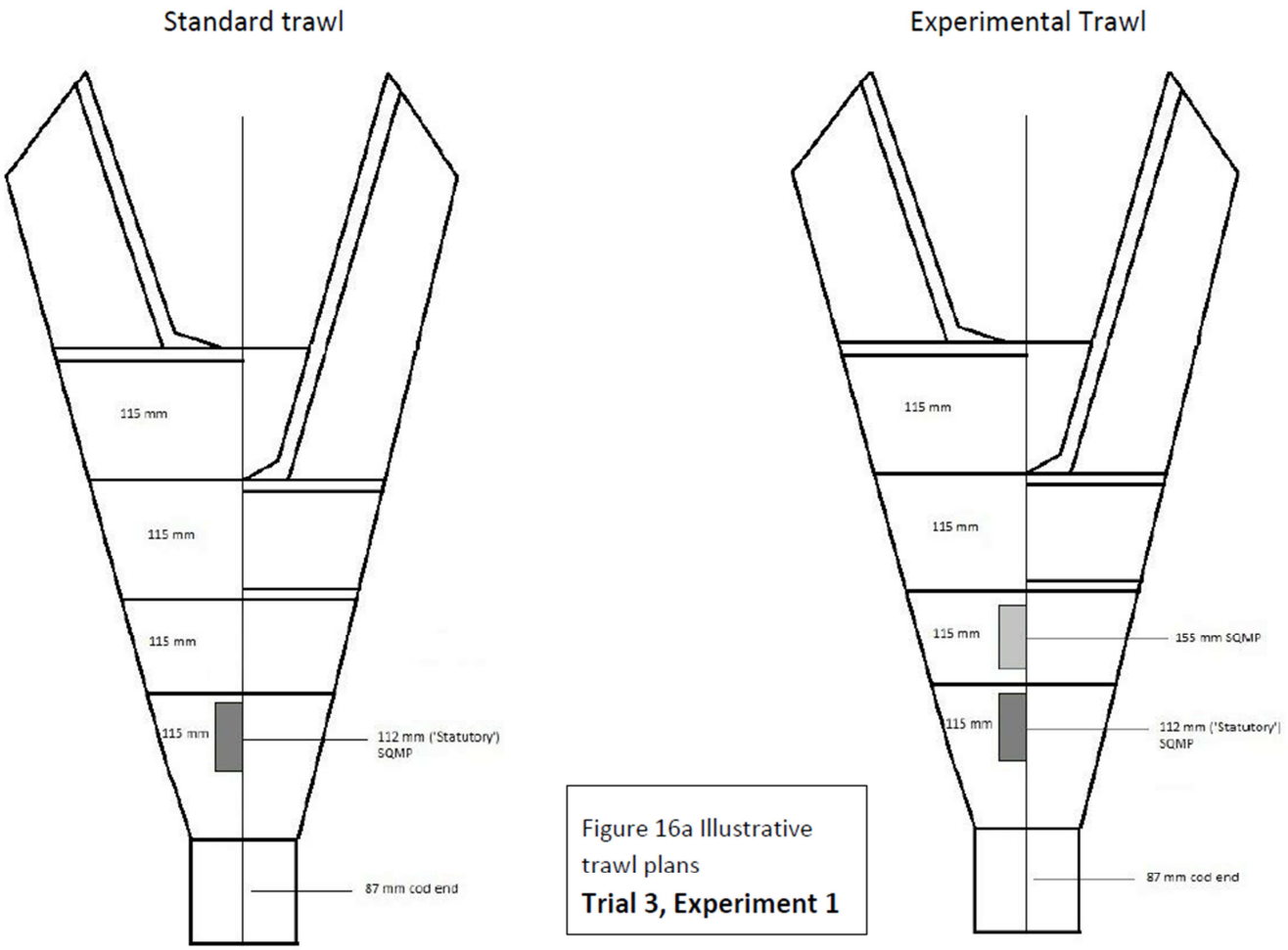
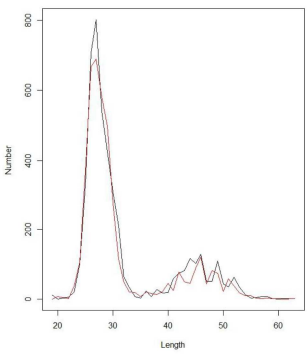
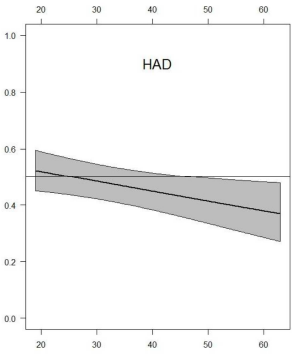
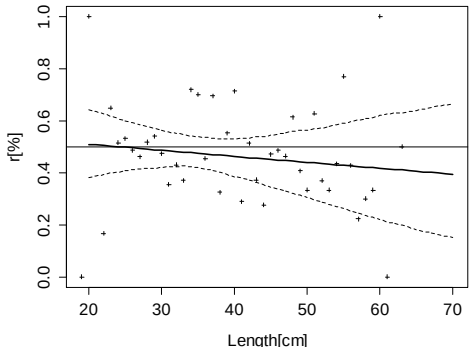


Figure 16a Illustrative trawl plans
Trial 3, Experiment 1

Haddock







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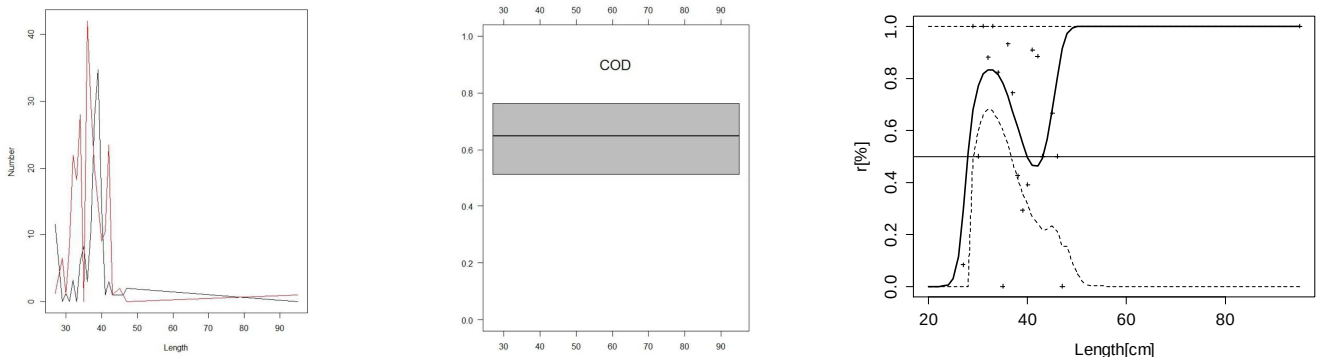
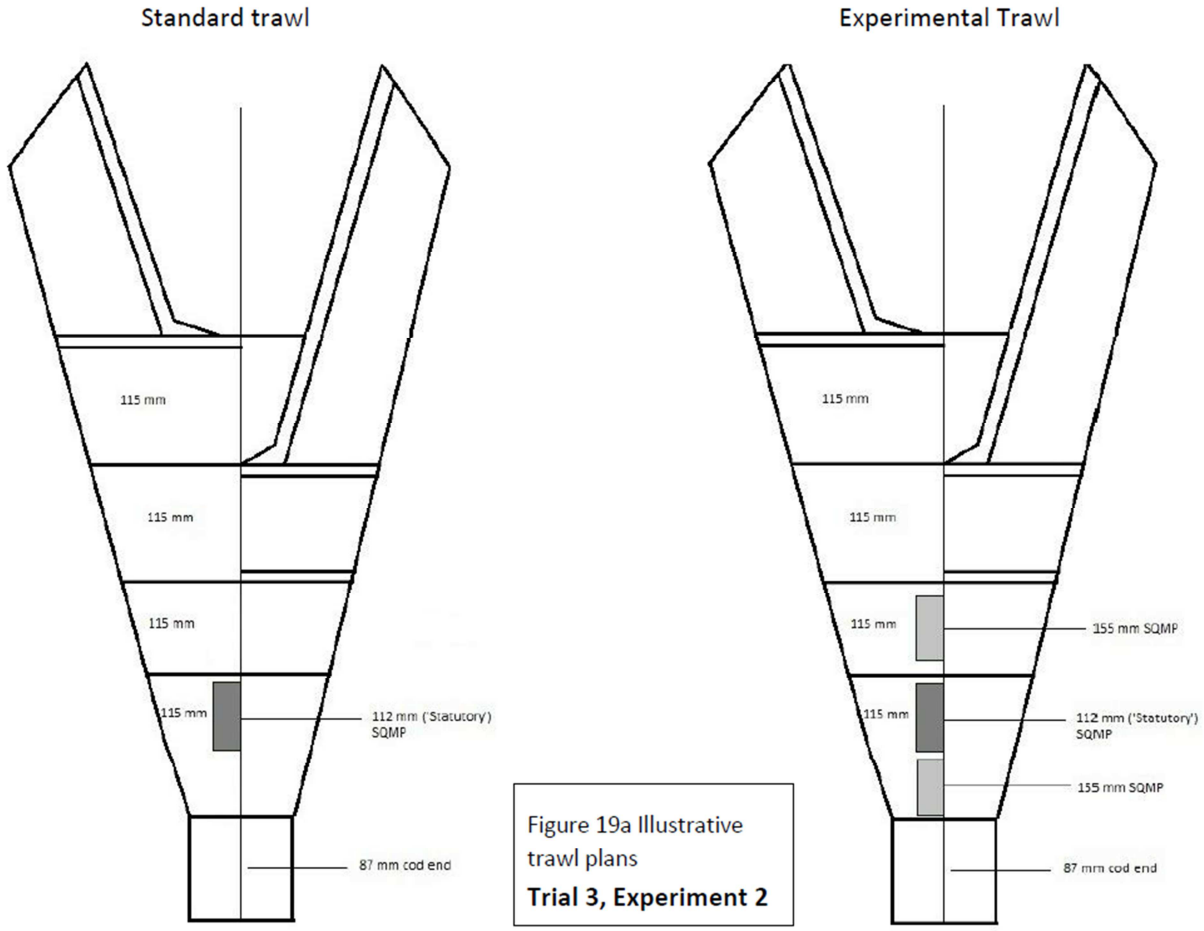


Figure 6.1.4. Trial 3. Experiment 1 (155 mm square mesh panels).



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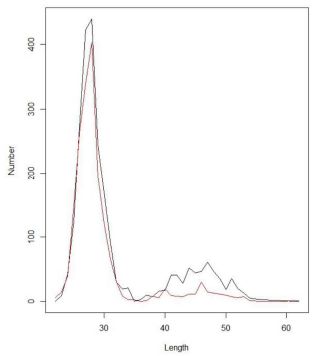

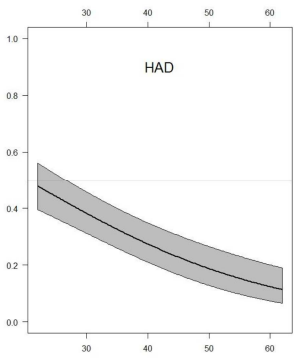

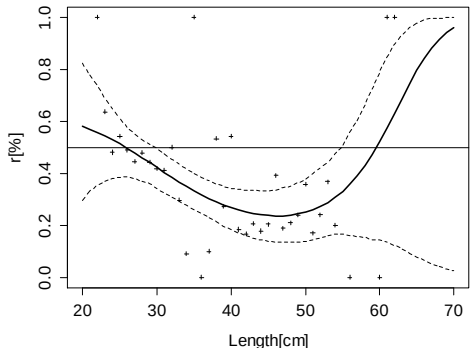

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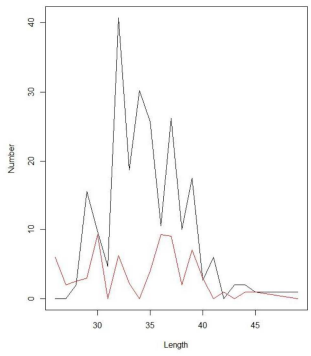
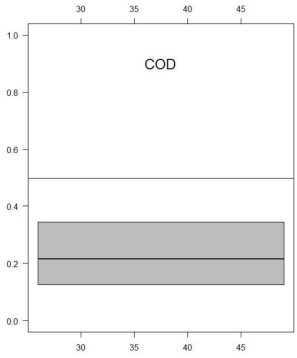




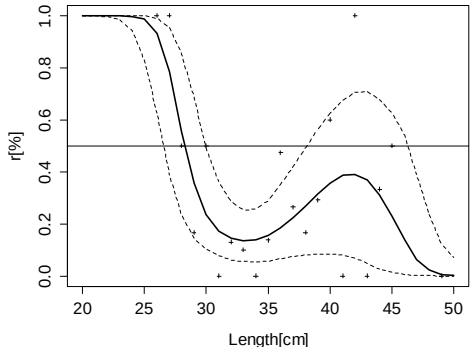


Figure 6.1.5. Trial 3 - Experiment 2.

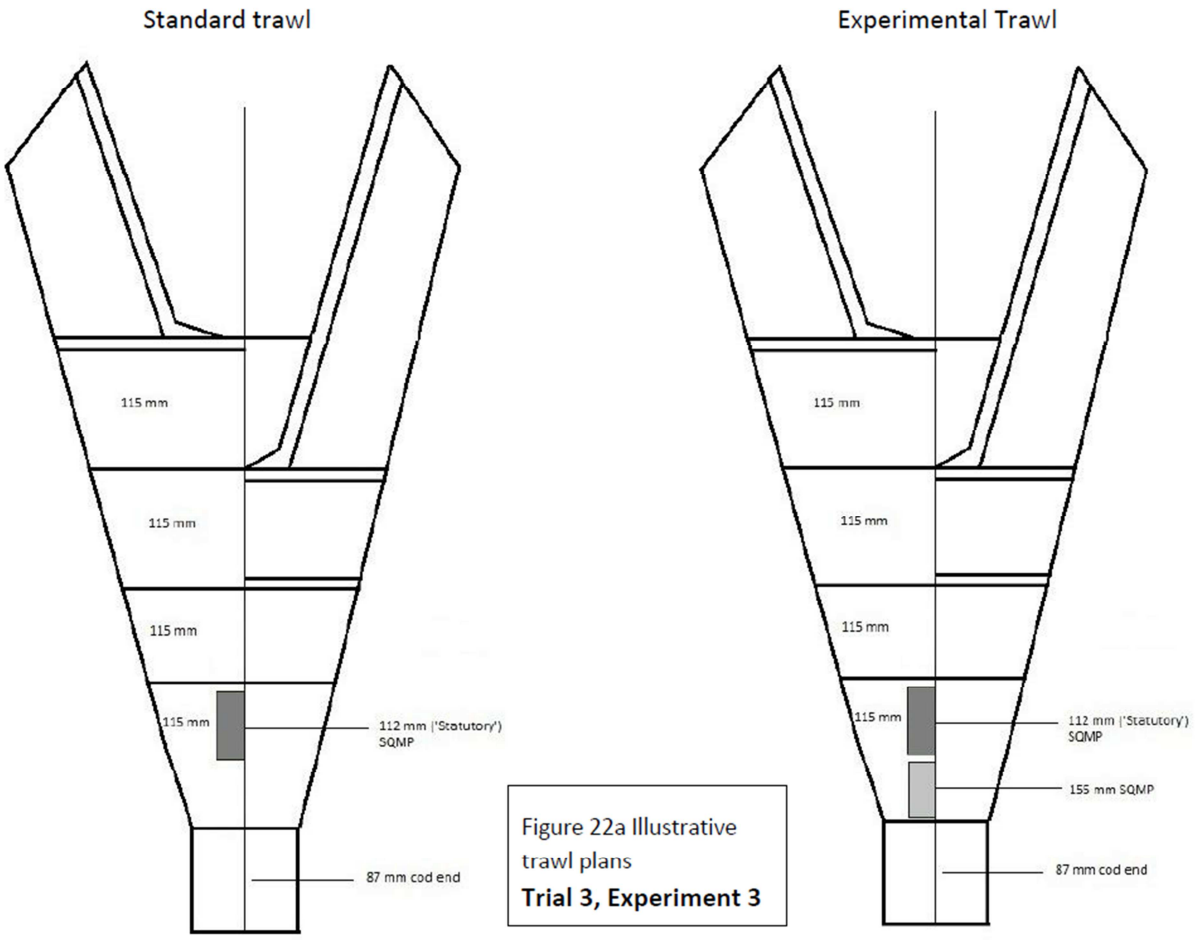
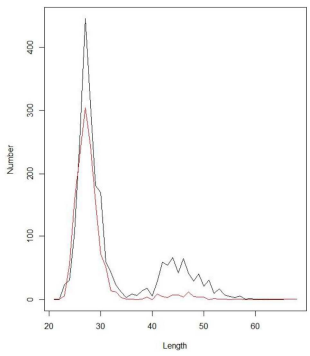
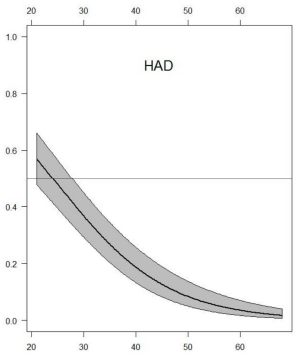
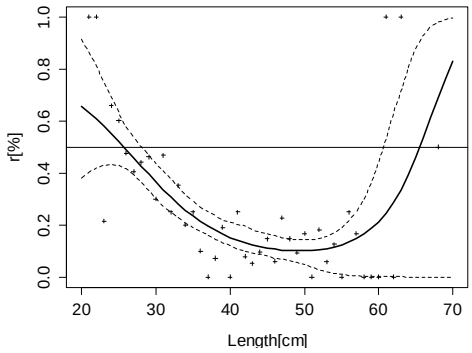


Figure 22a Illustrative trawl plans
Trial 3, Experiment 3

Haddock







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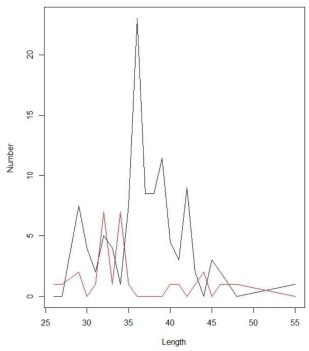
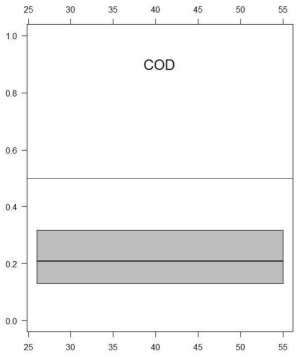




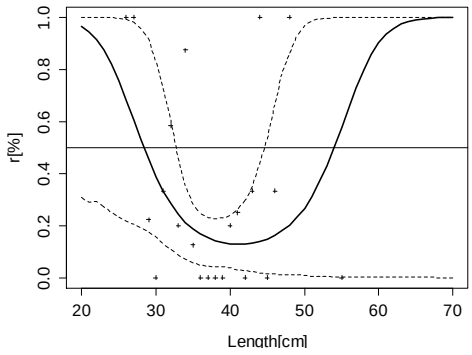
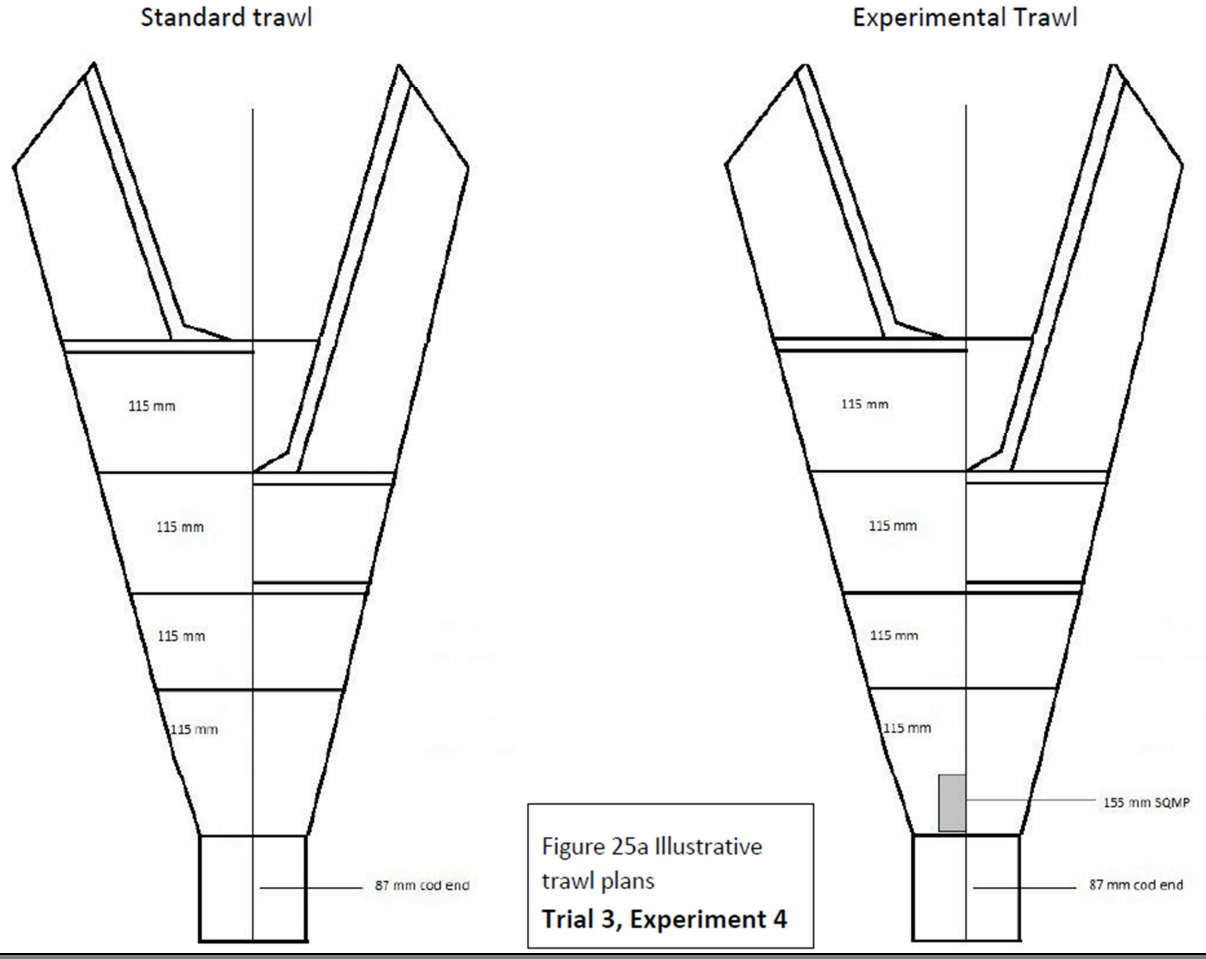
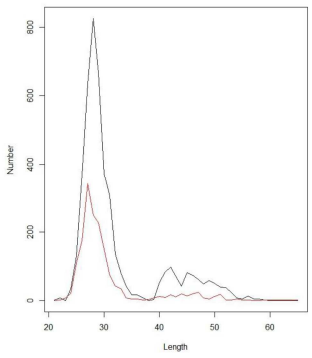
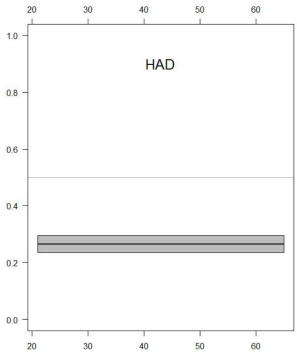


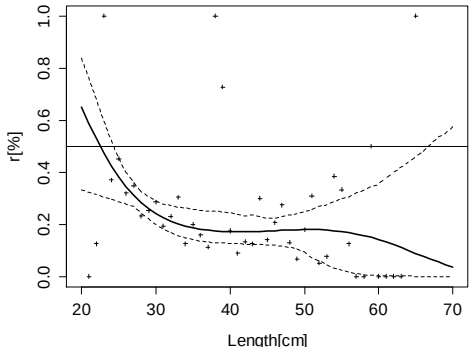
Figure6.1.6. Trial 3 - Experiment 3.



Haddock







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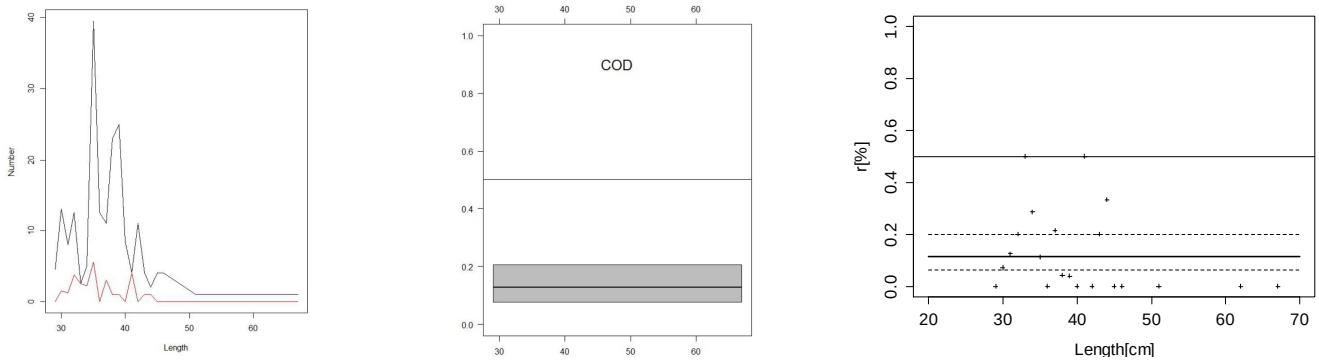

Figure6.1.7. Trial 3 - Experiment 4.

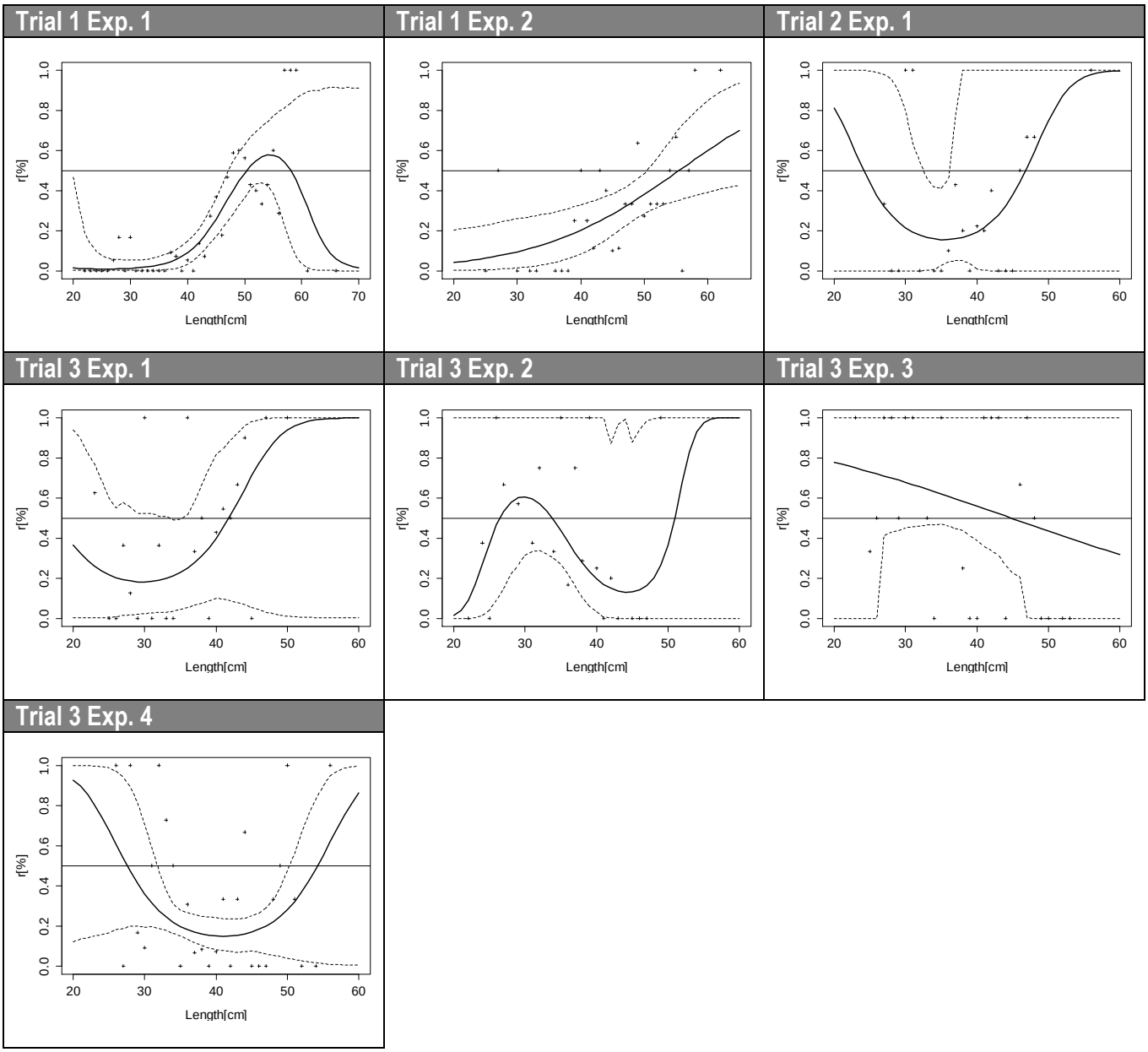

Figure6.1.8. Catch comparison analysis carried out by STECF at the plenary session (STECF PLENARY 14-03) for Whiting.

T1E1 (Figure 6.1.1): catch comparison analysis carried out at the STECF PLEN 14-03 demonstrated that the T1E1 version can be expected to very substantially reduce the catches of both small haddock (<45 cm) and cod (<45 cm). Whiting catches were very substantially reduced for length below 48 cm.

T1E2 (Figure 6.1.2): for haddock we observed similar results of the T1E1 design, but for haddock <40 cm. While for cod, STECF confirmed the findings of Catchpole et al. (2014), which practically demonstrated no differences between the experimental and the traditional version. Similarly to T1E1, whiting catches were very substantially reduced for length below 50 cm.

T2E1 (Figure 6.1.3): for haddock a marginal reduction of haddock across the length range is observed with the new analysis. Regarding cod it is not possible to have conclusive results. Marginal catches reduction of whiting can be seen in the range 25-45 cm.

T3E1 (Figure 6.1.4): New data analysis indicates no effect on haddock catch. Contrarily, while Catchpole et al. (2014) concluded that there was a statistically significant increase in cod with the modified trawl across the full length range, STECF reports that it is impossible to have robust conclusive inferences. Marginal reduction of whiting can be seen in the below 40 cm.

T3E2 (figure 6.1.5): In agreement with Catchpole et al. (2014), STECF notes a substantial increasing reductions in haddock catches with increasing size above 30 cm can be noted. STECF confirmed the substantial reduction in cod catches but only for lengths above 30 cm and not across the full length range as reported by Catchpole et al. (2014). Impossible robust conclusive inferences can be drawn for whiting.

T3E3 (Figure 6.1.6): for haddock we observed similar results of the T3E2 design. Precisely, the experimental design significantly reduced the cod catch above 33 cm. Similarly to T3E2, is not possible to drawl robust conclusive inferences for whiting.

T3E4 (Figure 6.1.7): For haddock, STECF partially confirmed the findings of Catchpole et al. (2014), with substantial reduction in catches of haddock above 25 cm. As regards cod, STECF confirmed the results of Catchpole et al. (2014), with almost all cod avoided. A very substantial reduction in cod catches across the full length range. STECF notes also a substantial effect on catch reduction for whiting in the range 32-50 cm.

STECF summarized the results of the trials for cod, haddock and whiting as follows:

Table 6.1.1. Summary of results for each species in the three set of trials (Trial 1.3), conducted using three different commercial fishing vessels, and seven different trawl modifications (experiments, see Exp. in the table). DM: diamond-mesh netting; DMC: diamond-mesh codend, SMP: square-mesh panel. The numbers after these acronyms provide the nominal mesh opening. Position of the SMP from the codline are also provided after the @-symbol. More information can be found on Catchpole et al. (2014) and from Figure 6.1.1 to Figure 6.1.7.

Trial / Exp.	**Traditional trawl**	**Modifications**	**COD**	**HAD**	**WHG**
Trial 1 / Exp. 1	DMC100	SMP100 in codend SMP100 @ 9-12 m	Marginal reduction of small cod (<45 cm)	Very substantial reduction of small haddock (<45 cm)	Very substantial reduction below 48 cm
Trial 1 / Exp. 2	DMC100 SMP100 @ 9-12 m	SMP100 in codend	No effects	Very substantial reduction of small haddock (<40 cm)	Very substantial reduction below 50 cm
Trial 2 / Exp. 1	DM115 throughout DMC100	DM200 wings, square, lower back	No effects	Marginal reduction across length range	Marginal reduction for the range 25-45 cm
Trial 3 / Exp. 1	SMP115 @ 6-9 m DMC87 DM115 elsewhere	SMP155 @ 9.5-12.5 m	*Inconclusive results*	No effects	Marginal reduction of small whiting (<40 mm)
Trial 3 / Exp. 2	SMP115 @ 6-9 m DMC87 DM115 elsewhere	SMP155 @ 9.5-12.5 m SMP155 @ 2.5-5.5 m	Substantial reduction of cod above 30 cm	Substantial reduction of haddock above 30 cm	*Inconclusive results*
Trial 3 / Exp. 3	SMP115 @ 6-9 m DMC87 DM115 elsewhere	SMP155 @ 2.5-5.5 m	Substantial reduction of cod above 33 cm	Substantial reduction of haddock above 30 cm	*Inconclusive results*
Trial 3 / Exp. 4	DMC87	SMP155 @ 2.5-5.5 m	Very substantial reduction of cod across length range	Substantial reduction of haddock above 25 cm	Reduction of whiting in the range 32-50 cm

STECF conclusions

These different analyses provide a coherent picture of the situation of the Celtic Sea gadoid fisheries in 2015 that can be broadly summarised as follows:

- The three gadoid stocks (cod, whiting and haddock) are largely associated across most of the fishing area, and the possibilities for spatial decoupling are limited; therefore, decoupling must primarily be envisaged through selectivity improvements.
- Fishing mortality is currently highest for haddock with regard to F_{MSY} target, and the required F reductions for this stock (-55%) make it the most limiting stock for the fishery in 2015 under current selectivity patterns;
- The Commission has proposed an equivalent 55% reduction of F2015 for cod, in order to limit the risks of overquota catches of haddock in the mixed fishery. This would imply a fishing mortality for cod well below F_{MSY}, and significant amount of foregone yield. Improved escapement of haddock (all ages) could reduce this "choke" effect to some extent, and warrant the exploitation of the cod stock closer to its F_{MSY} target.
- This situation of unbalance in the fishing opportunities for the various stocks is being worsened by the perspective of large incoming recruitment. Anecdotal evidence is pointing out towards a recruitment pulse in the 2013 year class of both cod and haddock, much higher than the average recruitment levels currently assumed in the ICES advice. This year class has already recruited in the haddock fishery at age 0 in 2013, and is now recruiting in the cod fishery at age 1 in 2014. For both stocks, this year class will make a significant contribution to the catches in 2015. Under the low TACs currently proposed for 2015, high levels of discarding can be anticipated. High discarding may limit the future contribution of these large year-classes to the SSB of both stocks.
- This situation will also create additional difficulties for the implementation of the landings obligation in 2016.
- Consequently, the scientific advice for 2015 should be updated as soon as the latest survey data are available, accounting for increased recruitment but assuming unchanged selectivity patterns. The report of the ad-hoc contract has already provided catch options for a range of possible recruitment scenarios, paving the way for a rapid update process.
- The gear currently used by TR1 fleets includes a 100mm SMP located 9-12 m ahead of the codend, which itself has a minimum mesh size of 100mm. Increasing the mesh size in this 9-12m panel to 120 mm for all TR1 fisheries over the entire fishing area (both east and west of 8 degrees West) would reduce to some extent the "choke" effect of the haddock stock for the fishery but the most effective proposed measure would be the use of 120mm diamond cod end (DMC120mm). A fairly basic analysis of the financial implications of the various options was carried out and losses implied by the reduced landings were considered fairly moderate (10% or less for the most selective measure).
- The additional gear trials undertaken by the UK provides additional information on a range of alternative measures intended to improve selectivity of the fishery. According to these trials, when accounting for the loss of marketable fish, and the changes in selectivity towards haddock, the design incorporating a 100mm square-mesh panel in the code-end (BACOMA) was the most effective design tested in the UK trials. A square mesh panel of mesh size of 155mm in a position that is effective for releasing haddock near to the cod-end resulted in the considerable loss of marketable fish.

- STECF notes that these results are not directly comparable to the selectivity simulations presented in the ad-hoc contract. It would require translating the catch comparison data provided into alternative selectivity ogives, and including them into the catch forecast simulation, to allow for a full comparison. It was not possible to do this additional comparison during STECF. Therefore, it is not possible to compare the effects of the 100 SMP in the cod end (BACOMA) presented in the UK trial with those of the 120mm diamond cod end from the ad-hoc study.
- Major changes in selectivity will impact F_{MSY}, and it might be necessary to update reference points to avoid unintended increase of fishing mortality on the older ages if F on the younger F decreases.

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6.2. Technical measures and a results based approach

Background

STECF EWGs 12-14 and 13-01 considered different principles for defining selectivity under the future technical measures regulation. One of the conclusions from these EWG's was that

results based approaches or approaches where there are clearly defined objectives such as prescribed reductions in fishing mortality or catch rates, can provide appropriate and clear targets.

In principle, catch based indicators as a 'result-metrics' could be seen as an alternative to prescriptive technical specifications of fishing gears. This has the advantage of providing a closer link to the objective in terms of attaining a specific catch profile rather than using the technical characteristics of the gear as a proxy.

The choice of indicators is important as catch based parameters are not only influenced by the choice of selectivity measure and tactic, but also on the underlying population structure making it difficult to disentangle the technical/tactical effects from changes in the population. This can result in unstable indicators and indicators that are not solely responsive to the technical/tactical changes by individual businesses. Choice of indicator is likely to be fishery and regionally specific and are likely to require continued revaluation. Such EWG 13-01 suggested Minimum Conservation Reference Sizes could be used as such an indicator provided that the reference sizes are linked to the objective of obtaining a specific catch profile.

Setting minimum selectivity standards may pose an alternative approach to the use of pure catch based metrics. Such an approach has been proposed by the Commission in the context of implementing a discard ban in the Skagerrak. Such an approach, however, would require ongoing scientific evaluation of gears proposed by industry to meet the targets and would likely result in defining a list of permissible gear due to control and enforcement concerns. This may lead back to a prescriptive set of rules at regional level and move away from the goal of simplification.

Terms of Reference

STECF should consider whether using catch metrics or selectivity patterns (or a combination of both) could be used as the basis of a results-based approach as an alternative to prescriptive gear-based or spatial measures building on the work completed earlier by STECF EWG 12-14 and 13-01. STECF should consider the data needs for defining such catch metrics and selectivity patterns and the type of indicators to measure effectiveness and equivalence.

STECF observations

STECF EWGs 12-14 and 13-01 have elaborately considered the idea of shifting away from the current prescriptive technical-measures regulation towards a results-based approach. The results-based approach is considered preferable, e.g., because it would reduce the complexity of current legislation on technical measures and also because it would harness the industry's potential for innovation to develop technology supporting the achievement of agreed aims. Nevertheless, it has been considered too optimistic that fishing businesses operating under the landings obligation and with fully documented fisheries would evolve towards sustainable exploitation patterns without the need for any technical regulations. The feasibility of such self-regulation depends on, e.g., the assumptions that the economic optimum can be fully aligned to the biological or ecological optimum (e.g. through economic instruments) and that the free-riders problem can be avoided. These issues could be addressed under

regionalisation. The new, co-decided technical measures framework, however, will probably set some baseline or minimum requirements as a safeguard so that the overarching CFP objectives are not compromised. In consultation with the DG Mare focal person, STECF has interpreted the ToRas a request that STECF should elaborate on those baseline requirements, for example on how to set them. STECF will focus on the two alternatives for a result-based approach that were put forward by STECF EWG 13-01, i.e. the concepts of i) catch metrics and ii) selectivity profiles.

STECF response

STECF considers that the baseline or minimum requirement should be based on the principle that selectivity should not become worse than it currently is. STECF focussed on demographic selectivity within species rather than selectivity in the context of avoidance of bycatch of vulnerable or choke species.

Catch metrics

Catch metrics could be set as a limit proportion of the catch that is below a certain reference size. This reference size could be, e.g., the size at 50% maturity or the minimum conservation reference size (mcrs). According to the principle above, the limit proportion would correspond to the proportion achieved in a certain reference year or range of years (e.g. 2014, or 2010-2014). These limit proportions could be set by stock (species by management area), and, if needed, by quarter, by Member State, by fleet segment, and/or by metier. In order for these limit proportions to be independent of actual stock abundances@age (which fluctuate from year to year) they could be derived each year from fishing mortality rate values. However, it is noted that there is considerable uncertainty in forecasting future recruitment and hence can result in uncertainty in the predicted numbers@age recruiting to the fishery.

STECF proposes the following procedure, but other procedures could also be followed. In the Short Term Forecast (STF) the catch numbers@age could be predicted under the selection pattern of the reference year (or range of years). Databases such as the STECF Effort EWG and the ICES Intercatchhold (at least for some of the stocks) the catch numbers@age for each year disaggregated by strata such as by quarter, by Member State, by fleet segment, by métier (see example table below).

Catch@age	Stratum 1	Stratum 2	Stratum 3	total
Age 1	$Catch_{1,1}$	$Catch_{1,2}$	$Catch_{1,3}$	$Catch_{1,t}$
Age 2	$Catch_{2,1}$	$Catch_{2,2}$	$Catch_{2,3}$	$Catch_{2,t}$
Age 3	$Catch_{3,1}$	$Catch_{3,2}$	$Catch_{3,3}$	$Catch_{3,t}$

The STF catch numbers@age can then be attributed to the strata according to the historical proportions from a chosen year or range of years (see example table below).

STFCatch@age	Stratum 1	Stratum 2	Stratum 3
STF_1	$STF_1*Catch_{1,1}/Catch_{1,t}$	$STF_1*Catch_{1,2}/Catch_{1,t}$	$STF_1*Catch_{1,3}/Catch_{1,t}$
STF_2	$STF_2*Catch_{2,1}/Catch_{2,t}$	$STF_2*Catch_{2,2}/Catch_{2,t}$	$STF_2*Catch_{2,3}/Catch_{2,t}$
STF_3	$STF_3*Catch_{3,1}/Catch_{3,t}$	$STF_3*Catch_{3,2}/Catch_{3,t}$	$STF_3*Catch_{3,3}/Catch_{3,t}$

Using the appropriate age-length-distribution the forecasted catches could be attributed to above and below the chosen reference size. In this example the age-length-distribution is the same for each stratum (see example table below), but these could differ per stratum.

	Below chosen reference size
Age 1	95%
Age 2	50%
Age 3	5%

For each stratum the STF catch numbers below and above the chosen reference size can then be calculated (see example below for stratum 1).

Stratum 1	total	Below reference	Above reference	Proportion below reference
Age 1	$STF_{1,1}$	$0.95*STF_{1,1}$	$0.05*STF_{1,1}$	
Age 2	$STF_{2,1}$	$0.5*STF_{2,1}$	$0.5STF_{2,1}$	
Age 3	$STF_{3,1}$	$0.05*STF_{3,1}$	$0.95*STF_{3,1}$	
total	C_{total}: Total catch numbers (Σ)	C_{below}: Total catch numbers below reference (Σ)	C_{above}: Total catch numbers above reference (Σ)	C_{below}/C_{total}

Thus the limit proportion of catch numbers that are below the chosen reference size can be established for each stratum, as C_{below}/C_{total} in the above example table.

This procedure assumes that any new fishing method can be categorised in one of the existing strata (gear group, métier). However, results-based management encourages innovation, and such innovative practices might not fit into any of the existing gear or métier categories. The new fishing approach could be categorized in the stratum in which the skipper/vessel was formerly fishing or in the métier that most closely corresponds to the target (assemblage of) species. In any case a new approach should only be permitted if it improves selectivity relative to all current fishing practices catching the same (or a similar set of) species.

Selectivity profiles

Based on the principle that the baseline selectivity profile should not be worse than it currently is, all gears currently permitted could be listed, and for each of them the selectivity parameters for all relevant species should be listed; the worst selectivity parameters listed for a species across all the listed gears will be the baseline for that species. Any new gear design should then only be permitted if across all the relevant species the experimentally measured selectivity parameters are no worse than the baseline for that species.

An alternative procedure could be to determine the 'driver species' and a chosen reference size for that species, e.g. the mcrs. This reference size could then be set as, e.g., the L_{25} (the 25% retention length: the length of fish that has a 25% probability of being retained and a 75% probability of escaping after entering the codend). Subsequently, the mesh size that achieves that L_{25} for the driver species can be determined. Following that, for each of the

other relevant species caught together with the driver species, the L_{25} corresponding to that mesh size needs to be determined; this will be the baseline L_{25} for the respective species. Any new gear design should then only be permitted if across all the relevant species the experimentally measured L_{25} for that species is no worse than the baseline $L_{25}$for that species.

It can be imagined that a (group of) fishing business(es) might propose to operate a certain gear in combination with spatiotemporal avoidance of certain ('driver') species (cf Articles 11 and 13 of the current cod plan). Theoretically a proposed gear that is very efficient in catching the target species and very 'bad' in terms of selectivity parameters for the 'driver' species could be allowed if used in seasons and areas where the 'driver' species is avoided. Such a fishing approach should only be permitted if it can be scientifically judged to be no worse than current practices, e.g. in terms of catches of the 'driver' species.

In both cases (catch metrics and selectivity profiles) there is no reason why the objectives couldn't be set more stringently than 'not worse than current'; the procedures/calculations proposed above can be made with any target value of selectivity. For example, for young ages a lower selection (relative F@age) than the current value can be proposed and used for the calculation of the limit proportion of catch numbers that are below the chosen reference size. In the case of selectivity profiles, the mcrs could be set larger, or the probability of being retained could be set at a lower percentage. Adoption of more stringent selectivity may result in higher maximum sustainable yields, as explained and explored in STECF EWG 13-01.

6.3. Advice on the state of cod haddock and whiting stocks in the West of Scotland.

Background

Article 29d of EC Regulation No 850/98 sets restrictions on the fishing of cod, haddock and whiting in ICES area VI, defining an area in which fishing is restricted. A number of derogations are provided for various gears. In accordance with article 29d, paragraph 13 Member States must also implement an on-board observer programme in order to sample catches of discards of vessels benefiting from the derogations contained in the Regulation. Member States must report annually on the findings from this observer programme.

One of the derogations included in the Regulation (Article 29d paragraph 9) allows vessels over 15m to fish within the restricted area with trawls with a codend and square mesh panel of 120mm mesh size. Vessels under 15m can fish with trawls with a codend and square mesh panel of 110mm mesh size. Under a recent amendment to this Regulation (Regulation (EU) 227/2013) a reporting requirement for the Commission has been introduced. Paragraph 10 of Article 29d requires the Commission by the 1st Jan 2015 to assess the characteristics of the derogation in paragraph 9.

In addition paragraph 15 which was also introduced by Regulation (EU) 227/2013 requires the Commission to assess by 1 January 2015 the state of cod, haddock and whiting stocks in the restricted area. On the basis of this assessment, where appropriate, the Commission must submit to the European Parliament and Council a proposal for amendment.

Background documents can be found on: https://stecf.jrc.ec.europa.eu/plen1403.

Request to STECF

STECF is requested to:

- Comment on the selectivity parameters for cod, haddock and whiting delivered by the gears defined in paragraph 9 of Article 29d and whether these gears remain appropriate given the current state of cod, haddock and whiting stocks in the restricted area defined in the Regulation.

- Comment on the impact of the measures since their introduction in 2009 on cod, haddock and whiting stocks based on the scientific advice over this period and the annual reports from the Member States. Comment on whether the restricted area and derogations remain appropriate.

STECF observations

Stock status at 1 January 2015

Although it is requested in paragraph 15 of the Regulation (EU) 227/2013 to evaluate the stock status of cod, haddock and whiting in the designated area specified in the regulation, STECF can only provide the stock status for these species for the entire ICES Division VIa.

For cod in VIa (West of Scotland), fishing mortality is high and has been above F_{lim} for most of the time-series. The spawning-stock biomass has been below B_{lim} since 1997 and has remained very low, well below B_{lim} since 2006. Recruitment has been estimated to be low since 2001 and is considered impaired.

Since 2014, haddock has been assessed in Subarea IV and Divisions IIIa West and VIa (North Sea, Skagerrak, and West of Scotland). Fishing mortality has been below F_{MSY} since 2008 and SSB has been above the MSY $B_{trigger}$ since 2001. Recruitment is characterized by occasional large year classes, the last of which was the strong 1999 year class. Apart from the 2005 and 2009 year classes, which are around the long-term average, recent recruitments have generally been poor although recent surveys indicate that the 2014 year class is bigger leading to a reopening of the ICES advice for this stock.

For whiting in VIa (West of Scotland), the spawning-stock biomass has been increasing since 2006 but remains very low compared to the historical estimates and is below B_{lim}. Fishing mortality has declined continuously since around 2000 and is now very low. Recruitment is estimated to have been very low since 2002. The 2009 and, to a lesser degree, 2011 year classes are estimated to be above the recent average.

Derogations on Article 29d of EC Regulation No 850/98

Observer trip reports for 2010-2011 and 2013 were available from Ireland. Reports from Scottish observer trips were provided by the Commission for 2011, 2012 and 2013.

Irish vessels

The Irish effort from the TR2 gear has declined from 63% of the total TR effort over the period 2003-2008 to 0.12% for the period 2009-2010. In 2013 there has been no Irish targeted *Nephrops* fishery (TR2) in VIa. Fishing effort of TR1 vessels less than 15m using 110mm cod-end and 110 mm square mesh size panel is also very low (1.3% of TR1 effort in 2010) and not sampled. Therefore all observer tips related to TR1 activities of vessels > 15m. It should also be noted that Irish TR1 effort only constitutes ~10% of the total international effort in VIa.TR1 activity is confined to an area known as the Stanton Bank or outside the restricted area in waters deeper than 200m.

Although discard rates in TR1 vary substantially between observer trips, the overall discard rates by species are relatively low except for cod in 2013. The discard rates for cod in 2010, 2011 and 2013 are 3%, 1% and 70% respectively. The high discard rate in 2013 is heavily influenced by the zero TAC which was implemented since 2012. The discard rates for haddock in 2010, 2011 and 2013 are 9%, 12% and 7% respectively. For whiting the rates for these years are 13%, 15% and 29% respectively. The contribution of the Irish catches in 2013 compared to the estimated total catches of cod, haddock and whiting in area VIa are 3%, 2% and 14% respectively.

Scottish vessels

The observer trips were about equally spread between *Nephrops* trawlers (TR2) and other trawlers (TR1) and amount for 2011-2013 to 197, 281 and 376 days at sea respectively. In 2013, only two vessels using gillnets of mesh size > 120mm fell under the derogation but were not sampled and no vessels using gillnets with mesh size > 90mm within 3nm applied for a derogation.

The reports provide discard rates for fish below minimum landings size (MLS) and above MLS which are informative in making judgments about whether changes in mesh size would be beneficial in addressing current discard issues.

For the *Nephrops* trawlers (TR2), in the last 5 years, there is a high discard rate (47-81%) for cod above MLS and a moderate (13-42%) discard rate for cod below MLS. It should be noted however that the cod catches are very low (7% of TR1 catches). For haddock and whiting discard rates for undersized fish are much higher than for fish above MLS. Average discard rates over the last 5 years for haddock are 12% for fish above MLS and 59% for fish below MLS. The whiting values are 30% and 68% respectively. Also here it should be noted that the TR2 catches of haddock and whiting amount to about 5% and 17% of the TR1 catches.

The catches for the 3 species from the under 15m vessels using nets with mesh size > 110mm are negligible.

For the vessels over 15 m using nets with mesh size > 120mm and less than 90% saithe in catch retained on board (TR1), in the last 5 years, there is a high discard rate (44-81%) for cod above MLS and a very low discard rate (0.02-2%) for cod below MLS. This suggests that an increase in mesh size would not be likely to be beneficial to cod mortality since the current discard practices predominantly affect large cod. These observations coincide with a period of very low cod TAC's and zero TAC's introduced since 2012. Average discard rates over the last 5 years for haddock are 8% for fish above MLS and 2% for fish below MLS. The whiting values are 25% and 2%.

STECF conclusions

Management measures taken thus far have not recovered the cod stock in Division VIa and not constrained catches. TAC restrictions on landings and effort and spatial management of fisheries catching cod in Division VIa have not controlled mortality levels. In 2013 catches (landings + discards) were nine times greater than the reported landings and estimated mortality is dominated by discarding. From the available reports, there is also no evidence of effort displacement over time of the vessels operating under the 850/98 derogation.

The zero TAC for this area and 1.5% bycatch by live weight limit implemented in 2012 applies to the retained part of the catches and therefore does not constrain discards. There is evidence to suggest that the introduction of this measure has resulted in substantially increased discard rates in some fleets.

Fleets fishing at depths less than 200 m (i.e. within the cod recovery zone) are subject to the effort restrictions of the cod long-term management plan (EC 1342/2008) and the new gear technical measures specified in EC 53/2010. Vessels fishing to the west of the management line are still subject to effort restrictions, but may apply for additional effort up to the point where fleet-aggregated effort equals that from the previous year (if fleet effort allowances were cut). Significant landings from this stock are taken west of the line defined in EC 1342/2008 (see section 6.4).

The implementation of the cod long-term plan effort controls (Annex IIa of Reg. (EC) 43/2009) and other technical measures, including gear restriction in Division VIa (Annex III of Reg. (EC) 43/2009) was expected to lead to large changes in fishing patterns, starting in 2009. The STECF-14-13 report analyses effort data and concludes that, looking across all gears, there has been a substantial decrease in effort between 2009 and 2011 but stable effort since. The same pattern in effort is seen in TR1 gear which is the main cod catching gear in Division VIa (STECF, 2014). STECF does not have the information at the relevant spatial scale to determine whether effort has decreased within the restricted area defined in Article 29d of Reg 850/98. In addition the absence of such date precludes an assessment on the effectiveness of the restricted area in controlling fishing mortality on cod.

With regard to whether the (TR1) gears defined in paragraph 9 of Article 29d of Reg. 850/98 remain appropriate given the current state of cod, haddock and whiting stocks in the restricted area defined in the Regulation, STECF considers that given the low proportions of cod, haddock and whiting below the legal minimum landing size (2% or

less for each species) discarded from these gears, the majority of discarding is a result of over quota. Hence the selective properties of those gears remain appropriate with respect to avoidance of catches below the current minimum landing sizes. In order to reduce over quota catches, alternative management instruments will need to be employed.

Under paragraph 15 of Article 29d, an assessment of the state of the cod, haddock and whiting stocks is required as a basis for any proposals to make adjustments to the provisions of the Article. In the case of cod, catches are predominantly made by the larger meshed gears and are typically of large cod. The STECF comments in the paragraph above apply. In the case of whiting the stock continues to be in a poor state albeit with some signs of improvement. For this species, catches of small whiting made by TR2 gears are mainly discarded and further efforts to reduce this problem are required. Relatively high discard rates of haddock are also observed in the TR2 gear and measures to reduce whiting discards would also help haddock. It should be noted, however, that unlike whiting, the haddock stock is in a reasonable state and recent recruitment has been higher.

6.4. Evaluation of national measures taken under Art 13(6) of the cod plan

Background

In accordance with Article 13.2 of Council Regulation 1342/2008 establishes a long term plan for cod stocks and the fisheries exploiting these stocks the Member States may increase the maximum allowable fishing effort within applicable effort groups. Member States are required to notify the Commission of any planned increase of the fishing effort allocation by April 30 of the year during which such compensation for effort adjustment shall take place. The notification shall include details of the vessels operating under the special conditions referred to in Article 13 (2) (a-d), the fishing effort per effort group that the Member State expects to be carried out by those vessels during the year and the conditions under which the effort of the vessels is being monitored, including control arrangements.

Under Article 13.7 the Commission shall request STECF to compare annually the reduction in cod mortality resulting from the application of point (c) of Article 13 (2) of the cod plan with the reduction it would have expected to occur as a result of the effort adjustment referred to in Article 12(4).

Not all Member States have allocated additional effort only on the basis of Article 13 (2) (c) and have identified additional allocation on the basis of Article 13 (2) (a,b and d). Member States are required to submit by March each year a report on the amounts of effort used within the actions during the previous year.

Information on the respective measures has now been submitted by FR, IR, UK, DE and DK.

Background documents can be found on: https://stecf.jrc.ec.europa.eu/plen1403.

Terms of Reference

Based on information provided by the United Kingdom, France, Ireland, Germany and Denmark justifying fishing effort increases for 2013 under the conditions laid down in article 13.2 (c) of the cod plan (Council Regulation (EC) No 1342/2008), and the reports of effort allocated under these measures, STECF is requested to assess the effectiveness of the relevant cod avoidance measures undertaken pursuant to Article 13.2 (c). In carrying out its assessment, the STECF is requested to compare the impact on cod mortality which results from the application of this provision (cod avoidance or discard reduction plan) with the reduction it would have expected to occur as a result of the fishing effort adjustment referred to in article 12.4 of the cod plan.

In light of its conclusions of the assessment referred to above, STECF is requested to advise the Commission on any appropriate adjustments in effort to be applied for the relevant areas and gear groupings as laid down in article 13.7 of the cod plan as a result of the application of Article 13.2 (c).

Additionally, based on any relevant information obtained from the EWG 14-06 and in conjunction with the information provided by Member States justifying fishing effort increases for 2013 pursuant to Article 13.2 of the cod plan Council Regulation (EC) No 1342/2008) under conditions other than paragraph 13.2 (c), STECF is requested to assess the additional effort applied by the Member States concerned in terms of its compatibility with the conditions and objectives of the plan and in terms of its impact on cod mortality. STECF is requested to identify instances where this assessment is not possible and to indicate specific information for each action that should be provided to enable such assessment.

STECF is requested to identify where possible any cumulative or in combination impact as a result of the actions undertaken under Article 13 (2).

STECF response

STECF dealt with the same request in its July plenary (PLEN-14-02), but could not do the quantitative comparisons suggested, because EWG-14-06 was unable to analyse catch data. In the meanwhile, EWG-14-13 has analysed catch data, and the partial F values per fleet segment and derogation are now available. In the tables 6.4.1, 6.4.2 and 6.4.3, for each of the four management areas, the partial F values of the affected fleets and the year-on-year changes in partial F are reported, and compared with (i) the required reduction under the cod plans, and (ii) the observed change in overall F for the stock concerned. STECF comments are included in those tables.
For clarification purpose STECF reiterates here the comments made during PLEN 14-02 for Member States concerned.

Germany
Germany only submitted a table, without explanatory cover letter, documenting the total number of kW days allocated and used by TR1 and TR2 in the respective management areas.

Information taken from the Appendices produced by EWG-14-13 show that Germany used provision of Article 13.2(b), the provision according to which cod catches have to be smaller than 5% of the catches. According to the table provided, only the TR1 fleet in area 2b used extra effort allocated under Article 13.2, namely 450,481 kW days (about 65% of what had been notified for that fleet and area) on top of the 954,390 kW days according to Article 12.
The available information suggests there is no fishing mortality on cod associated with the TR2 group of Article 13 vessels. In the case of the TR1Article 13.2(b) vessels, partial F is very low (0.00136), furthermore the partial F declined in 2013. The partial F results suggest that the additional effort has not impaired the objectives of the plan.

France
France provided a cover note stating that the provision under consideration was Article 13.2(b).France submitted tables documenting the effort notified and used under Article 13 by the respective fleets in the respective areas in 2013, plus lists of the individual vessels concerned. According to their table and letter, of the 1,451,944 kW days notified for the TR2 fleet in the North Sea and Eastern Channel, only 1,421,287 kW days were used, because 5 of the 240 vessels that had requested the derogation did not comply with the condition laid down in point 2 (b) of Article 13 ofthe Regulation. On the other hand, for TR1 in the North Sea and Eastern Channel the notified amount of 690,780 kW days has been increased to 1,839,943 kW days because 8 vessels were added to the 3 vessels in the original notification; the document states that these vessels have respected the condition laid down in point 2 (b) of Article 13 of the Regulation. Lastly, for TR1 in the West of Scotland, the used effort was as notified (2,580,678 kW days).

Ireland
Ireland provided a list of vessels using selective gears and the number of kW days used by each individual vessel. It involves 54 vessels using an Inclined Separator Panel with TR2 gear in ICES Area VIIa, having used a total of 476614 kW days; and 9 vessels using a Swedish Grid with TR2gear in ICES Area VIIa, having used a total of 87006 kW days.

Denmark
As in previous years, Denmark provided substantive submissions including descriptive narratives, an analysis (see below), effort data for the various gear types, and some documentation on control measures. Denmark utilised Article 13.2(c) in the Kattegat TR2 fleet under a comprehensive Danish Cod Avoidance Plan since 2010 with the following measures:
1. Closed area in the Kattegat
2. Closed area in the Sound
3. Use of square mesh panel in the Kattegat (October- December)
4. Use of fishing pools in eliminating discards
5. Use of selective gear (Seltra 180 mm) in the Kattegat (January-September)
Using a modelling approach (described in the peer-reviewed paper Vinther and Eero 2013), the Danish documents report an expected reduction in fishing mortality by 2013 to 26% of the baseline(2008). Year-on-year application of 25% reductions since 2009 would have resulted in a reduction by 2013 to 24% of the baseline. Nevertheless, STECF reiterates from last year (PLEN-13-02) that no attempt was made to estimate the actual, observed reduction.

UK

As in previous years, the UK provided substantive submissions including descriptive narratives, effort data, and gear descriptions. There is a separate document on gear descriptions by DARD (Northern Ireland) and one on the Scottish Conservation Credits Scheme by Scotland. The UK utilised the provisions of Article 13.2(b), 13.2(c), and 13.2(d) for TR1 and TR2 in the North Sea and Eastern Channel, the West of Scotland, and the Irish Sea (see Table 6.9.1).

		Sea area / category					
		North Sea (area b)		Irish sea (area c)		West of Scotland (area d)	
		TR1	TR2	TR1	TR2	TR1	TR2
Actions	13(a)	-	-	-	-	-	-
	13(b)	358,570	208,888	-	-	-	967
	13(c)	4,600,419	5,078,125	13,508	1,856,374	1,001,595	904,877
	13(d)	-	-	-	-	434,799	-
	TOTAL	4,958,989	5,287,013	13,508	1,856,374	1,436,394	915,159

In the documentation these actions are further broken down by each Fisheries Administration, by sea area and by activity type.

In Scotland there were six categories of action under Article 13.2(c):

• No fishing within mandatory seasonal closures and Real Time Closures

• Fishing trips where fishing took place exclusively beyond a specified 'deep water line' in Areas IIa and IVa;

• Fishing trips where fishing took place exclusively south of 59 degree latitude in Area VIa;

• Fishing trips where the area of capture was exclusively within Area IVa and where landings constituted of not less than 40 per cent of Monkfish and/or Megrim;

• The exclusive use of specified selective gears while fishing with a category of regulated gear; and,

• Participation in a trial of fully documented cod fisheries (Catch Quotas).

In Northern Ireland there were two categories of action under Article 13.2(c):

• No fishing within mandatory seasonal closures, Real Time Closures and compliance with a voluntary seasonal closure in the East Irish Sea;

• The exclusive use of specified selective gears while fishing with a category of regulated gear.

In England there were three categories of action under Article 13.2(c):

• The mandatory compliance with all UK Government seasonal and real time fishery closures,

• Use of selective fishing gear,

• Participation in trials for fully documents fisheries (catch quota).

The separate document of the Scottish government on the Scottish Conservation Credit Scheme provides several analyses that attempt to quantify the impact of the measures. Preliminary analyses suggest that the impact is still in the desired direction but the reductions in cod catches attributable to the Scheme appear to be smaller than in previous years.

Table 6.4.1 - Area 2a (ICES IIIaS)

	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**STECF comments**
Plan F	0.417	0.313	0.235	0.176	0.132	0.099	Impact of plan for 2013 unknown because of a lack of stock assessment
Annual change		-0.25	-0.25	-0.25	-0.25	-0.25	
ICES F (assessment)	0.417	0.365	0.44	0.381			No ICES assessment in 2013 for 2012 and 2014 for 2013
Annual change		-0.12	+0.21	-0.13			
Partial F of MS fleet segment and derogation							
DNK – TR2 13.2 (c)			0.209	0.119			Reduction of partial F of 43% in 2011. No ICES assessment for 2012 and 2013
Annual change				-0.43			

Table 6.4.2 - Area 2b (ICES IIIaN, IV and VIId)

	2008	2009	2010	2011	2012	2013	STECF comments
Plan F	0.648	0.421	0.4	0.4	0.4	0.4	
Annual change		-0.35	-0.05	0	0	0	
ICES F (assessment)	0.648	0.623	0.597	0.521	0.444	0.398	Target F reached for that area in 2013
Annual change		-0.04	-0.04	-0.13	-0.15	-0.1	
Partial Fof MS fleet segment and derogation							
DE – TR1 13.2 (b)		0.00187	0.00187	0.0022	0.00142	0.00136	Total decrease of partial F (27%)
Annual change			0	+0.18	-0.35	-0.04	
DE – TR2 13.2 (b)		0.00002	0.00029	0.00012	0.00001	0.00001	Total decrease of partial F (50%) and very low contribution to cod mortality
Annual change			+13.5	-0.59	-0.92	0	
FRA – TR1 13.2 (b)					0.00004	0.00082	Increase of partial F but very low contribution to cod mortality
Annual change						+19.5	
FRA – TR2 13.2 (b)					0.00001	0.00001	No change of partial F but very low contribution to cod mortality
Annual change						0	
ENG – BT1 13.2 (b)			0.00001	0.00004	0.00004	0.00001	Decrease of partial F from 2011 (75%) but no change in comparison with 2010. Very low contribution to F
Annual change				+3	0	-0.75	
ENG – BT2 13.2 (b)		0.00005	0.00062	0.00052	0.00033	0.00025	Decrease of Partial F from 2010 (60%) after large increase in 2010. Very low contribution to F
Annual change			+11.4	-0.16	-0.37	-0.24	
ENG – GN1 13.2 (b)						0.00001	
ENG – TR1 13.2 (b)		0.00085	0.00076	0.0009	0.00054	0.0003	Reduction of partial F of 65% from 2009
Annual change			-0.11	+0.18	-0.4	-0.44	
ENG – TR1 13.2 (c)		0.01477	0.01747	0.0145	0.00909	0.01808	After two years of reduction, in 2013 partial F reached the

Annual change			+0.18	-0.17	-0.37	+0.99	same level than in 2010
ENG – TR2 13.2 (b)		0.00075	0.00146	0.00138	0.0006	0.00033	Reduction of partial F of 56% from 2009 and low contribution to cod mortality
Annual change			+0.95	-0.05	-0.57	-0.45	
ENG – TR2 13.2 (c)		0.00407	0.00213	0.00183	0.00093	0.00035	Strong total reduction of partial F (91%)
Annual change			-0.48	-0.14	-0.49	-0.62	
NIR – TR1 13.2 (b)		0.00007	0.00002	0	0	0.00001	Very low contribution to F
Annual change			-0.71				
NIR – TR2 13.2 (a)					0	0.00002	New gear segment for NIR. Very low contribution to F in 2013
SCO – TR1 13.2 (b)		0.0074	0.00744	0.0013			Only condition (c) has been used in 2013. Under that condition the total reduction of partial F (from 2009) is 26%. An increase of 5% has been assessed between 2012 and 2013
Annual change			0	-0.83			
SCO – TR1 13.2 (c)		0.18085	0.16097	0.1244	0.12696	0.13306	
Annual change			-0.11	-0.23	+0.02	+0.05	
SCO – TR2 13.2 (b)		0.00448	0.0156	0.00669	0	0	Large reduction of partial F (69%) from 2009
Annual change			+3.48	-0.57			
SCO – TR2 13.2 (c)		0.01173	0.0011	0.00621	0.01121	0.00362	
Annual change			-0.91	+4.65	+0.8	-0.68	

Table 6.4.3 - Area 2c (ICES VIIa)

	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**STECF comments**
Plan F	1.24	0.93	0.698	0.524	0.393	0.295	
Annual change		-0.25	-0.25	-0.25	-0.25	-0.25	
ICES F (assessment)	1.24	1.22	1.19	1.16	1.16	1.15	Low reduction of F (7,3%) during the total period
Annual change		-0.02	-0.02	-0.03	0	-0.01	
Partial Fof MS fleet segment and derogation							
IE - TR2 13.2 (a)		0.00161	0.03678	0.03212	0.02649	0.02607	Large increase in 2010. Reduction of partial F (29%) from 2010.
Annual change			+21.84	-0.13	-0.18	-0.02	
ENG –TR1 13.2(b)		0.00002	0.00001		0.00065		Condition not used in used in 2013
Annual change			-0.5		+65		
ENG –TR1 13.2(c)		0.00462	0.00844	0.00361	0.00058	0.00024	Large decrease of partial F (95%) from 2009
Annual change			+0.83	-0.57	-0.84	-0.59	
ENG –TR2 13.2(b)			0.00166	0.0004	0.00244	0	
Annual change				-0.76	+5.1		
ENG –TR2 13.2(c)		0.00156	0.00044	0.00047	0.00034	0.00015	
Annual change			-0.72	+0.07	-0.28	-0.56	Large decrease of partial F (90%) from 2009
NIR – TR1 13.2(a)						0.02166	Partial F equal to 2.17%.
NIR – TR1 13.2(b)			0.00008	0.00192	0.001	0.00901	Increase of the use of condition 13.2(b) with a partial F equal to 0.9% in 2013 but large decrease (99,9%) of partial F under condition 13.2(c)
Annual change				+23	-0.48	+8.01	
NIR – TR1 13.2(c)		0.38001	0.17592	0.0638	0.00797	0.00013	
Annual change			-0.54	-0.64	-0.88	-0.98	
NIR – TR2 13.2(a)					0.00089	0.10387	Main contributor of fishing mortality in the Irish Sea. Categorisation from EWG-14-13 is in agreement with the report provided by UK where it is mentioned for NIR the main use of condition 13.2(c). No data
Annual change						+10.7	
NIR – TR2 13.2(b)		0.02565	0.0209	0.01216	0.16599		
Annual change			-0.19	-0.42	+12.65		

NIR – TR2 13.2(c)		0.12024	0.09849	0.02943	0.01659		was available for that condition from EWG-14-13
Annual change			-0.18	-0.70	-0.44		
SCO – TR1 13.2 (c)					0.00043		
SCO – TR2 13.2 (b)		0.00481	0.0001	0.00072	0.00382		Increase of partial F (8.5%) in 2013 but low contribution to cod mortality
Annual change			-0.98	+6.2	+4.3		
SCO – TR2 13.2 (c)					0.00012	0.00113	
Annual change						+8.4	

Area 2d (ICES VIa and Vb EU)

	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**STECF comments**
Plan F	1.018	0.764	0.573	0.43	0.322	0.242	
Annual change		-0.25	-0.25	-0.25	-0.25	-0.25	
ICES F (assessment)	1.018	0.901	0.841	1.035	0.909	0.99	
Annual change		-0.11	-0.07	+0.23	-0.12	+0.09	
Partial Fof MS fleet segment and derogation							
FR - TR1 13.2 (b)					0.01556	0.0001	Large decrease of partial F in 2013 and very low contribution to cod mortality
Annual change						-0.99	
IE - TR1 13.2 (d)		0.05981	0.08675	0.20158	0.0005	0.00116	Increase in 2013 but large reduction (98%) of partial F from 2009
Annual change			+0.45	+1.32	-0.999	+1.32	
SCO – TR1 13.2 (c)		0.02993	0.03567	0.05504	0.08339	0.21622	Large increase of partial F (159%) in 2013 and during the total period from 2009 (622%)
Annual change			+0.19	+0.54	+0.52	+1.59	
SCO – TR1 13.2 (d)		0.37681	0.27701	0.7022	0.61974	0.57428	Large increase of partial F (153%) in 2011. Decrease of 18% from 2011. Main contributor to cod mortality.
Annual change			-0.26	+1.53	-0.12	-0.7	
SCO – TR2 13.2 (b)		0.02369	0.00204	0.00314	0.0191	0.0	Large increase of partial F (314%) in 2013 and during the total period from 2009 TR2 c (increase of number of larger vessels from North Sea)
Annual change			-0.91	+0.54	+5.08		
SCO – TR2 13.2 (c)		0.00883	0.00036	0.00091	0.06629	0.27443	
Annual change			-0.96	+1.53	+71.85	+3.14	

STECF comments and conclusion

Previous STECF comments (see PLEN-13-02) regarding the difficulties associated with the evaluation of the effects of the Article 13c provisions remain relevant but will not be reiterated here.

In terms of more qualitative comments on the various actions undertaken by the Member States, STECF has nothing to add beyond the comments made in previous years' reports (e.g. PLEN-13-02).

In area 2a (Kattegat) only Denmark use condition 13.2(c) and no other condition through Article 13 is utilized. STECF note that the partial F for that fleet segment was 0.119 in 2011, the last year where an assessment was provided by ICES. That represented a reduction of 43%, which is a larger reduction than the 25% stipulated by the plan. No ICES assessment has been made in 2013 for 2012 and in 2014 for 2013.

In area 2b (North Sea and Eastern Channel), plan F (0.4) has been reached in 2013. The sum of partial F used under the different conditions from Article 13.2 is 0.158. STECF notes that the main contributor is the TR1 Scottish fleet operating under condition 13.2(c) which has a partial F of 0.133 which represent 84% of the sum of partial F in 2013. For this fleet F decreased by 26% at during the early period of the cod plan (2009 to 2011) but no subsequent reductions have been observed as intended in the plan.

In area 2c (Irish Sea) plan F (0.295) has not been reached. Assessed F was 1.15 in 2013. The sum of partial F used under the different conditions from Article 13.2 is 0.161. The main contributor is the TR2 Northern Ireland fleet operating under condition 13.2(a) which has a partial F of 0.133 which represent 64% of the sum of partial F in 2013. STECF note inconsistencies between the data from EWG-14-13 used for the tables and the UK report where is mentioned for that area the use of only condition 13.2(c) for that area. Notwithstanding the changes in fishing mortality associated with TR2 fleets have not been in line with the objectives of the plan.

In area 2d (West of Scotland) plan F (0.242) has not been reached. Assessed F is 0.99 in 2013. The sum of partial F used under the different conditions from Article 13.2 is 1.07. STECF notes that the main contributors are the TR1 Scottish fleet operating under condition 13.2(d) operating west of the "line" which has a partial F of 0.57 which represent 54% of the sum of partial F in 2013 and the TR1 Scottish fleet operating under condition 13.2(c) which has a partial F of 0.49 which represent 46% of the sum of partial F in 2013. Fishing mortality has increased for fleets operating under both conditions and therefore not consistent with the objectives of the plan.

6.5. Economic impact of eel trade ban- general trends

Background

The European eel (Anguilla anguilla) was included in Appendix II to the Convention on International Trade in Endangered Species (CITES) and Annex B to Council Regulation (EC) No 338/97 in March 2009. This was largely due to the threat posed to the conservation of the species by the export of glass eels from the EU to Asia for farming purposes. The main commodities which were exported before the ban were glass eels. In December 2010, an EU "Scientific Review Group" considered that, due to the critical conservation status of the stock, no export from or import into the EU of eels and derived products should be authorised. This "trade ban" has been in place for nearly four years now and the Commission wishes to assess the consequences of this measure on the economics and trade in European eels in the EU.

Terms of Reference

Based on data available from ICES on the implementation of the Eel Management Plans, the 2014 DCF Aquaculture economics data call, most recent Eurostat aquaculture and trade data as well as any other data sources,-STECF is requested to provide an analysis of general patterns with regards to the economic impact of the European eel export and import ban in place in the since December 2010.

STECF is in particular requested to *compare* the volume and value of eels traded, farmed and sold in the EU before and after the trade ban introduced in December 2010. (STECF is not asked to *explain* the differences because a) data for the 'after trade ban period" are only available for 2 years, and b) for further analysis to explain such differences, more detailed information would be required.)

Background documents can be found on: https://stecf.jrc.ec.europa.eu/plen1403.

STECF observations

JRC provided an analysis of the available information to STECF and STECF reviewed the JRC report[6]. STECF observes that the report provides a proper overview of the available data from different sources (AER data call, Aquaculture data call and Eurostat data (production statistics and PCOMEXT)). It confirms that the available data only cover the first two years after implementation of the trade ban with the exception of trade data which are available until the first 8 months of 2014. Trade statistics by length

6 Economic impact of eel trade ban – general trends. Study in support to the STECF 2014. Publications Office of the European Union, Luxembourg, EUR 26941 EN, JRC 9253, 10 pp. (see background documents on: https://stecf.jrc.ec.europa.eu/plen1403)

category are available for the period 2012-2014. The main developments that the note shows are:

- Eel landings decreased each year since 2010 whereas the total value of landings dropped in 2011, but increased again in 2012, due to an increase in the price.
- Exports of live Eel to third countries dropped to 0 after 2010, but in the first 8 months of 2014 exports increased again to 4.5 tonnes worth 0.95 mln. Euro.
- The price of live eel traded between EU MS increased after 2010 by 50% resulting in an average export price of 15 Euro/kg in 2012. After 2012 it decreased again to 11 Euro in 2014 (first 8 months).
- Prices of farmed eel also increased after 2010. The increase in off-farm price (around 15% from 2010 to 2012) was much less than the increase in average trade prices in the same period.
- Because of incompleteness of data, no clear conclusions can be drawn on aquaculture production from 2010 onwards.
- Economic performance of the main eel aquaculture segments in Europe did not show any clear trends after 2010.

Moreover, the note flags some concerns about the uncertainty and coverage of some of the data and the usefulness of the data for an evaluation.

STECF conclusions

STECF concludes that taking into account these issues, the JRC report can be used to show developments in the eel fishery, aquaculture and trade. STECF also concludes that in order to carry out a complete impact assessment of the trade ban including effects on the EU aquaculture sector it would be advisable to have at least four years of data available. This will be the case in 2016.

6.6. Assessment of measures implemented by the Portuguese authorities in relation to the management of rays

Background

On 29 December 2011 the Portuguese Administration adopted a national legislation (Portaria no. 315/2011) that prohibits, in all of the continental Portuguese EEZ and during the whole month of May, the catch, keeping on board, and landing of any skate species belonging to the Rajidae family. In addition, for each fishing trip outside of May a maximum of 5% bycatch, in weight, of those species is allowed to be kept on board and to be landed.

On 22 August 2011 the Portuguese Administration adopted a national legislation (Portaria no. 170/2014) that establishes a minimum landing size of 520 mm (total

length) for specimens of the genus *Leucoraja* or *Raja*, along the whole continental Portuguese EEZ.

Terms of reference

On the basis of the information provided by the Portuguese authorities the STECF is requested to advise on the effect on the conservation of rays (*Raja spp., Leucoraja spp.*) of the regulatory measures implemented by Portugal.

Background documents can be found on: https://stecf.jrc.ec.europa.eu/plen1403.

STECF response

STECF acknowledges the measures taken by the Portuguese authorities aimed at improving the status of ray species in ICES Division IXa. The most recent ICES advice on Cuckoo Ray (*Leucoraja naevus*) shows a positive trend in survey indices in recent years. For spotted ray (*Raja montagui*) and blonde ray (*Raja brachyuran*), ICES qualitative evaluation of fishing mortality has been stable in recent years. While the measures taken by the Portuguese may contribute positively to the management of these species, STECF considers that it is too premature to determine to what extent they have affected changes in exploitation. Their efficacy would depend on (i) the level of catches taken during the month of May relative to the other months and (ii) whether the fish caught and subsequently discarded survive.

STECF notes that in general skates and rays (EWG 14-11) tend to have a higher probability of discard survival in comparison to other species, but that survival tends to be fishery specific. To fully understand the potential benefits of the measures, it would be necessary to (i) undertake survival studies in the fishery concerned and (ii) to obtain detailed spatial and temporal catch and effort data which should also cover the period before the introduction of the measures (pre 2011).

STECF notes that the minimum landing size of 520mm is lower than the size-of-first-maturity for all three species. *R. brachyuran* has a size-at-first-maturity of 810-813mm; *L. naevus*, of 560 mm and; *R. montagui* 530-570mm (ICES, 2014). Therefore, STECF considers that the current minimum size does not fully prohibit the landing of juveniles and the appropriateness of the current MLS should be revaluated if studies demonstrate that discarded fish survive.

6.7. B_{pas} for southern hake

Background

The stocks of hake and southern megrim were benchmarked by ICES (WKSOUTH) in February 2014. For northern hake and southern megrims (ICES Divisions VIIIc and

IXa) B_{pa} is defined at 1.4 x B_{lim}. For southern hake (ICES Divisions VIIIc and IXa) B_{pa} is not defined.

Terms of reference

The STECF is requested to advise on a qualitative basis whether the spawning stock biomass of southern hake (ICES Divisions VIIIc and IXa) is within safe biological limits as defined by Article 4 of Regulation (EU) No 1380/2013 on the Common Fisheries Policy and if that is the case since which year.

STECF response

STECF first notes that the stock of southern hake is subject to a recovery plan agreed by the EU in 2005 (EC Reg. No. 2166/2005). The aim of the plan is to rebuild the stock to safe biological limits, set as a spawning-stock biomass above 35000 tonnes by 2016, and to reduce fishing mortality to 0.27. STECF also notes that, as mentioned by ICES, since the plan's enforcement, the stock historical perception has changed and as a consequence, the current recovery plan uses target values based on precautionary reference points that are no longer appropriate (ICES, 2014).

STECF also notes that, based on its latest assessment, ICES has now established B_{lim} at 9000t and will work towards developing an appropriate B_{pa} value.

STECF notes that for southern hake, there is no estimate of uncertainty associated with the SSB from the assessment carried out by ICES. B_{lim} can be set so that there is little probability that a biomass estimate which appears to be above B_{pa} will really be below B_{lim} (ICES, 1998). In such case, ICES uses a value of $B_{pa} = B_{lim}\, e^{1.645s}$ where s is a measure of uncertainty in the total biomass estimate, typically taken as 0.2 - 0.3.

If this rationale is applied to the stock of southern hake this would lead to a B_{pa} of 12,600t, and STECF thus considers that the recent levels of SSB as estimated by ICES in its latest advice (16,920t in 2011, 17,700t in 2012 and 18,900t in 2013) are likely to be within safe biological limitsas defined by Article 4 of Regulation (EU) No 1380/2013 on the Common Fisheries Policy.

STECF finally notes that the current recovery plan has been developed based on a stock assessment which has been strongly revised in 2010 and that updating some target values of that plan with a new assessment giving a very different perspective of the stock may not be appropriate. STECF considers that a new management plan needs to be developed based on the latest assessment.

6.8. Request from the UK to undertake a pilot project to minimise spurdog discards

Background

Spurdog has been subject to a zero TAC since 2010 currently fisheries are required to discard spurdog catches whether dead or alive. The reformed Common Fisheries Policy (Regulation (EU) No 1380/2013) requires the phased introduction of a landing

obligation for all stocks subject to a Total Allowable Catch (TAC). Consequently, for fisheries subject to catch limits, species that are subject to a zero TAC will have to be retained and have the potential to become choke species in mixed demersal fisheries.

The UK have been collating and analysing data from studies of spurdog distribution, by-catch, and survivability in the Celtic Sea (ICES Divisions VIIe-j). These analyses have been used to underpin a UK proposal for a pilot project under Article 14 of Regulation 1380/2013 to minimise catches, using a rolling time closure approach.

STECF have previously advised on the operation of scientific trials allowing landings of porbeagle and spurdog (PLEN 13-03). STECF have also previously identified that the provision of any catching opportunity should be avoided; that rebuilding was more important than monitoring of the population. ICES advice in 2014 is that there is slight increase from historical lows but that there should be no target fishery and that by-catch should be minimized.

The Commission has previously identified their wish to explore all possible avenues for avoidance (STEF PLEN-10-02), hence any pilot project may be examined to ensure that it will result in minimisation or avoidance of catches while contributing to the management objectives for the stock. The proposed development of this spurdog by-catch avoidance scheme may contribute to meeting the objectives of the landing obligation by assisting fishers to avoid, minimise and eliminate unwanted by-catches.

The UK has suggested that a marketable component based on dead catch should provide an incentive for fishermen for operation of a minimisation programme.

Request to STECF

STECF is requested to evaluate the proposed UK pilot project for a real-time spurdog by-catch avoidance scheme in the Celtic Sea (ICES Divisions VIIe-j). STECF is asked to comment on the proposal and the scientific value of this project.

In particular STECF is asked to comment on the incentive of this plan and determine the potential economic incentive from landing catches of spurdog. STECF is asked to identify any other incentives that could be implemented. STECF are asked to identify if this project will contribute to meeting the conservation objectives (under the CFP) for this species.

STECF is also requested to identity what additional conditions could be applied in the proposed trial to address any concerns; the data to be collected to allow for evaluation of this programme and the controls that are necessary to assess compliance or any other operational issue.

Background documents can be found on: https://stecf.jrc.ec.europa.eu/plen1403.

STECF observations and conclusions

On the scientific value of the UK pilot project for a real-time spurdog by-catch avoidance scheme in the Celtic Sea (ICES Divisions VIIe-j)

The project proposal summarises the legal and scientific background on spurdog by-catches, provides information on stock status and fisheries, detailed plans on data collection in collaboration with the fishing industry and quality assurance. Based on real-time by-catch monitoring data categorized in a traffic-light system, it proposes move-on rules for participating vessels (10) in order to minimise by-catches of spurdog.

STECF considers that there is some scientific merit to the proposal in that it may provide better information on by-catches, will further industry engagement in data collection and offers incentives for self-regulation. The proposed traffic light system resembles the recently proposed 'Real-Time Incentives (RTI)' approach (Kraak *et al*. 2012), in which grid cells are attributed with colours based on real-time catches but where the colours indicate the 'tariffs' according to which 'impact credits' have to be paid per day fishing in the respective cell. Depending on the results of the pilot, this RTI system could be considered for the future.

The value and efficacy of the project is based on the following assumptions that (i) only spurdog that have not survived the capture process are landed (dead discards) and others are released alive and is therefore neutral from a fish mortality perspective; (ii) that these landings are of spurdog that are incidental by-catch (non-target) and; (iii) the incentive to allow the sale of such fish, the volume of which increases with greater avoidance, will encourage fishermen to avoid areas where these incidental by-catches have occurred so that fishing mortality may potentially be reduced.

STECF had previously noted when requested to assess the impact of landing unitended by-catches of spurdog to improve stock monitoring (PLEN-13-03) that "*candidate information collection systems that would not increase mortality include observer programs in fisheries with by-catches of both species, technical monitoring e.g. CCTV monitoring on commercial fishing vessels, improved reporting, including self-reporting of total by-catches by commercial fishing vessels.*" Of these systems, the UK proposal would incorporate improved reporting of by-catches by fishermen, validated by observer sampling.

With regard to discard survival, the proposal provides estimates from previous field studies that vary between 23% (preliminary data of the 2013 campaign) and 75% (maximum of the 2011-2012 data). A survivability of around 60%, however, is being assumed for estimating the dead by-catch amounts as basis for the proposed by-catch quota of 5 tonnes per vessel per annum. STECF notes that this projection is subject to considerable uncertainty.

Further, STECF considers that the decision upon the health state of spurdog (lively, sluggish, dead) by fishermen presents some risk that spurdog that would have survived after release would be being classified as "dead" and therefore landed.

On the incentive of the pilot project and the potential economic incentive from landing catches of spurdog, and on the identification of any other incentives that could be implemented

The UK proposal foresees that the incentive of selling the dead component of by-caught spurdog would be proportional to positive avoidance behaviour of participating vessels where the better the avoidance, the more by-catch quota is allocated. STECF acknowledges the proposal with respect to its collaborative approach with the relevant stakeholders. The use of an incentive whereby good behaviour is rewarded with a landing allowance that comes at no apparent cost (but see below) to the stock is acknowledged. Furthermore, the avoidance through move-on rules for small areas accommodates the industry's fear of traditional fixed closures. Both aspects are likely to result in buy-in from the industry. The fact that participation is voluntary may contribute to their feeling of responsibility and their perception of having control. These positive sentiments may in turn contribute to the industry's empowerment and ownership, and thus to the success of the plan and to sustainability generally. The plan also provides measures to limit the possibility of a targeted fishery being developed through the use of monthly quota limits, prohibition of quota roll over and banking.

By-catches of spurdog appear in mixed fisheries with various marketable species and size categories. As the catch composition of these fisheries is not quantifiable in advance with sufficient certainty, STECF is currently not in a position to advise on the potential economic incentive from being permitted to land up to 5 t of the dead component of the catch of spurdog taken in mixed fisheries.

STECF is not aware of any other incentives that could be implemented in this context.

STECF notes a number of potential issues with the approach that require further consideration before managers take a decision on whether to sanction the pilot project.

- There are no indicators presented against which individual avoidance behaviour can be measured. It is therefore unclear how the individual vessel quota allocations could be calculated given that these would be based on a sliding scale, where greater avoidance is rewarded with higher vessel quota allocations. It is also unclear how such avoidance is translated into reductions in fishing mortality. Further clarification on this point is required.
- Furthermore, if between-vessel quota trading is permitted, there could be an incentive to trade quota between participating vessels, whereby individuals could potentially accrue sufficient quota to undertake a limited targeted fishery. While the proposed maximum landing of dead spurdog is only 50 t which in itself, is unlikely to result in any measurable effect on the potential rebuilding rate of the spurdog stock compared to any realised incidental catch, any development of a directed fishery is counter to the objective of minimising fishing mortality. Hence STECF considers that safeguards to prohibit accrual of quota at an individual-vessel level through between-vessel trading would need to be established.

- In addition, if spurdog catch levels are found to be below the maximum threshold for a given period, then there may be an incentive to misreport the "health state" of "lively" fish as "dead" so as to obtain some marketable landings thereby potentially increasing fishing mortality by landing fish that may have survived the capture and discarding process. Measures need to be included to avoid this *inter alia* observer coverage or CCTV systems.

On the contribution of the project to meeting the conservation objectives (under the CFP) for spurdog

Current conservation objectives under the CFP for spurdog are in line with ICES advice: "*considering the low stock size over the last two decades and the very low productivity of the stock, it is not possible to identify any non-zero catch that would be compatible with the MSY approach. Therefore, ICES advises that there should be no target fishery and that by-catch should be minimized*."

STECF notes that, according to ICES short-term forecast, a catch of 50 tonnes will generate very low mortality, which will have a minimal impact on the predicted increase of spurdog SSB in 2015 and 2016. If adequately restricted to the landing of dead discards, then in principle there should be no increase in fishing mortality, and therefore the project will not have any measurable effect on the conservation objectives for spurdog.

STECF considerations and conclusions

STECF notes that spurdog are subject to a zero TAC and are currently being considered as a prohibited species in the fishing opportunities being proposed for 2015. STECF considers that allowing fishing opportunities via the sale of dead discards of species which are severely depleted and subject to a zero TAC is a management decision.

STECF notes that in mixed fisheries, a zero TAC, implemented as total allowable landings, does not necessarily imply that catches will be zero. Any catches are simply discarded in order to comply with the TAC restriction and permitting the dead component of such catches to be landed will not result in any increase fishing mortality over and above that which has already occurred. Hence in practice, whether the dead component of the catch is landed or discarded, the net effect on the stock will be the same.

STECF considers that the incentive for participating vessels to be permitted to land a limited amount of the dead component of incidental catches of spurdog, may induce tactical changes in fishing behaviour that potentially could give rise to a reduction in fishing mortality by the participating vessels, compared to that which would have occurred without such changes. However, to test whether such a reduction in fishing mortality is realised in practice, requires that the pilot project is allowed to go ahead. Nevertheless, it is unlikely that any potential changes in fishing mortality will be detectable at the stock level and in practice it will prove difficult to ascertain whether the project is successful. On the other hand, STECF notes that in general, incentives

may result in increased buy-in by the industry and may also result in a higher probability of management objectives being achieved in practice (Dörner *et al*, 2014).

STECF also considers that proposed pilot project is likely to result in additional data on spurdog catches which may prove useful for future stock assessments, although additional data are already being collected through a parallel project (NEPTUNE) currently being undertaken by the UK authorities and STECF is unable to assess the additional value of the data that would be collected under the proposed pilot.

STECF considers that the main potential benefits of the proposed pilot project are as follows:

It provides an incentive for participating vessels to report incidental catches of spurdog and the proportions of the catch that are brought aboard dead and alive.

If operationally successful, it would require that vessels move away from areas of high incidental catch, for a limited period which is yet to be defined. Such behaviour may result in a reduction in fishing mortality relative to that which would occur in the absence of the provision to move away from areas of high incidental catch. However it is not possible to predict whether this is likely to be the case because it is not known whether move from one area to a different area will result in higher or lower incidental catches.

However, permitting a limited amount of the dead component of spurdog catches to be landed, may give an incentive to retain individuals that are brought aboard live. It may even result in a limited targeted fishery for spurdog. Furthermore, the pilot proposal does not specify how the individual vessel quotas are to be allocated (no details of the sliding scale are specified) or how the outcomes of the pilot are to be measured.

In summary, with the information available at present, there is no scientific basis to reliably predict whether the proposed pilot project is likely to deliver any conservation benefits for spurdog. What is clear however is that the proposal aims to make provision for participating vessels to be permitted to land a proportion of their catches of spurdog in return for a commitment to move on from areas where catches are above a certain threshold, which is yet to be defined. Hence it is clear that at present, managers need to base their decision on whether to permit the pilot to go ahead without having access to objective scientific advice.

STECF therefore concludes that the decision as to whether the proposed pilot for spurdog is allowed to go ahead, is clearly a policy decision and STECF notes that from that perspective, allowing the pilot to go ahead would mean granting a fishing opportunity to a specific group of vessels from a single Member State for a stock that is under a zero TAC.

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6.9. Revision of Mediterranean management plans for: 1) shore seine and purse seine nets in the Republic of Croatia; 2) boat seines fishing transparent goby (*Aphia minuta*) in Manfredonia, Italy and; 3) mechanised dredges in Catalonia, Spain.

Background

Under Article 19 of Council Regulation (EC) No 1967/20061 (hereafter referred to as "the Mediterranean Regulation"), Member States are expected to adopt management plans for fisheries conducted by trawl nets, boats seines, shore seines, surrounding nets and dredges within their territorial waters.

According to the first Paragraph of Article 19, Article 6(2), (3) and (4), first subparagraph, of Regulation (EC) No 2371/2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy shall apply to those management plans.

Regulation (EC) No 2371/2002 has been replaced by Regulation (EU) No 1380/2013 on the Common Fisheries Policy.

The matters covered by Article 6 on management plans of the former Regulation are now contained in Articles 9 and 10 of the new Regulation. In particular, Article 6(3) of Regulation (EC) No 2372/2002 provided that plans shall be drawn up on the basis of the precautionary approach to fisheries management and ensure sustainable exploitation of stocks and that the impact of fishing activities on marine ecosystems is kept at sustainable levels. It has been replaced, in principle, by Article 9(1) and (2) of Regulation (EU) No 1380/2013 on the Common Fisheries Policy which concern the principles and objectives of multiannual plans as regards sustainability. According to the first paragraph of Article 9 of Regulation (EU) No 1380/2013 a multiannual plan shall contain conservation measures to restore and maintain fish stocks above levels capable of producing maximum sustainable yield in accordance with Article 2(2).

According to paragraph 2 of Article 9 of Regulation (EU) No 1380/2013 where targets relating to the maximum sustainable yield as referred to in Article 2(2) cannot be determined, owing to insufficient data, the multiannual plans shall provide for measures based on the precautionary approach, ensuring at least a comparable degree of conservation of the relevant stocks.

The requirement to include conservation reference points provided for in Article 6(2) of Regulation (EC) No 2371/2002 is now included in Article 10 of Regulation (EU) No 1380/2013. Point (e) of the first paragraph provides that a multiannual plan shall include conservation reference points consistent with the objectives set out in Article 2.

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1 Council Regulation (EC) No. 1967/2006 concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea, amending Regulation (EEC) No. 2847/93 and repealing Regulation (EC) No. 1626/94.

According to paragraph 5 of Article 19 of Regulation (EC) No 1967/2006, the measures to be included in the management plans shall be proportionate to the objectives, the targets and the expected time frame, and shall have regard to:

(a) the conservation status of the stock or stocks;
(b) the biological characteristics of the stock or stocks;
(c) the characteristics of the fisheries in which the stocks are caught;
(d) the economic impact of the measures on the fisheries concerned.

Even though the management plan for boat seines targeting transparent goby in Italy has been prepared under the provisions of Regulation (EC) No 2371/2002, it would be beneficial to evaluate whether certain provisions of the new CFP as reformed by Regulation (EU) No 1380/2013, such as the MSY approach or the landing obligation have been included in the plan, or if at least the implementation of the plan will contribute to those objectives in the long term.

Terms of Reference

STECF is requested therefore to review the scientific basis for the above mentioned management plan, evaluate their findings and make appropriate comments with respect to the measures proposed therein.

In particular, STECF is requested to advice whether the management plan contains the adequate elements in terms of:

− The biological characteristics and the state of exploited resources with reference in particular to long-term yields and low risk of stock collapse;

− The description of the fishing pressure and the measures to accomplish a sustainable exploitation of the main target stocks;

− The data on catches, effort and catches per unit of effort (CPUE), as well as the biological reference points ensuring the conservation of the concerned stocks;

− The catch composition in terms of size distribution, with particular reference to the percentage of catches of species subject to minimum sizes in accordance with Annex III of the Mediterranean Regulation;

− The potential impact of the fishing gear on the marine environment with particular interest on protected habitats (i.e. seagrass bed, coralligenous habitat and maërl bed);

− The social and economic impact of the measures proposed; and

− The scientific monitoring of the management plan.

− Objectives that are consistent with the objectives set out in Article 2 and with the relevant provisions of Articles 6 of Regulation (EU) No 1380/2013;

− Quantifiable targets such as fishing mortality rates and/or spawning stock biomass;

− Clear time-frames to reach the quantifiable targets;

− Conservation reference points consistent with the objectives set out in Article 2 of Regulation (EU) No 1380/2013;

− Objectives for conservation and technical measures to be taken in order to achieve the targets set out in Article 15 of Regulation (EU) No 1380/2013, and measures designed to avoid and reduce, as far as possible, unwanted catches;

− Safeguards to ensure that quantifiable targets are met, as well as remedial action, where needed, including for situations where the deteriorating quality of data or non-availability put the sustainability of the main stocks of the fishery at risk;

− Other conservation measures, in particular measures to gradually eliminate discards, taking into account the best available scientific advice, or to minimise the negative impact of fishing on the ecosystem;

− Quantifiable indicators for periodic monitoring and assessment of progress in achieving the targets of the management plan.

Background documents can be found on: https://stecf.jrc.ec.europa.eu/plen1403.

Introduction

Member States are expected to adopt management plans for fisheries conducted by trawl nets (demersal and pelagic), boats seines (including both towed and surrounding seines), shore seines, surrounding nets and dredges within their territorial waters.

The plans shall include conservation reference points such as targets against which the recovery to, or the maintenance of stocks within, safe biological limits for fisheries exploiting stocks at/or within safe biological limits is ensured (e.g. population size and/or long-term yields and/or fishing mortality rate and/or stability of catches). The plans shall ensure the sustainable exploitation of stocks and that impact of fishing activities on marine eco-systems is kept at sustainable levels.

The management plans may incorporate any measure included in the following list to limit fishing mortality and the environmental impact of fishing activities: limiting catches, fixing the number and type of fishing vessels authorized to fish, limiting fishing effort, adopting technical measures (structure of fishing gears, fishing practices, areas/period of fishing restriction, minimum size, reduction of impact of fishing activities on marine ecosystems and non-target species), establishing incentives to promote more selective fishing, conduct pilot projects on alternative types of fishing management techniques.

Member States were expected to provide up-to-date scientific and technical justifications for such derogations.

STECF general comments on the evaluation of Mediterranean management plans

STECF considers that management plans developed at the level of fisheries and/or gear types, such as those presented here, are very difficult to evaluate with relation to MSY objectives. These objectives have to take into account the dynamics of the stock and the fisheries exploiting them. In many cases, stocks are exploited by multiple fisheries and possibly by different member states. Therefore, STECF consider that for shared stocks, a fishery management plan needs to include on the performance analysis all fleets and countries exploiting the stock. In addition, STECF notes that for many localised or small scale fisheries, obtaining full analytical assessments for many stocks (e.g. *Aphia minuta, Gymnammodytes cicerelus , Chamelea gallina, Donax spp., Calliste chione*, etc) may not be feasible due to limitations in the available data and the associated costs relative to the value of the fishery, meaning that it is not always possible or feasible to quantitatively assess whether a stock is being exploited relative to MSY consideration or not. For such data limited species, STECF considers that a management plan cannot be strictly compared against the MSY objective.

STECF notes that where catch (or landings) and effort information is available, CPUE or other biomass indicators should be used determine management actions i.e. formulated within a harvest control rule where management actions are specified on trends in CPUE or where available, survey indices, and to evaluate whether the stock is exploited at levels with low risk of severe depletion. STECF notes that recent scientific developments in the management of data limited stocks are, and will be, published in a special issue of Fisheries Research, by FAO, by several ICES workshops on life history traits; as well as works made by Hilborn (2010), Roa (2013), Carruthers (2010), Geromont (2014) and others.

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Thomas R. Carruthers, Carl J. Walters, Murdoch K. McAllister. 2012. Evaluating methods that classify fisheries stock status using only fisheries catch data. Fisheries Research, 119–120, pp. 66-79.

Geromont, H. F., and Butterworth, D. S. 2014. Generic management procedures for data-poor fisheries: forecasting with few data. ICES Journal of Marine Science, doi:10.1093/icesjms/fst232.

Request for review of the management plan for shore seine and purse seine nets in the Republic of Croatia[7]

Six different shore seine nets and four small purse seine nets are presented in the MP. Their main target species, number of licenses/active vessels, landings, smaller mesh sizes and fishing periods are summarized in the following Tables:

Gear	Name	Main target species	Number of licenses/number of active vessels in 2013*	Average annual total landings in the period 2008-2012 (t)	Current smaller mesh size (mm)	Current fishing season (month)
Shore seines	Girarica	*Spicarasmaris*	150/44	70	24	1 October – 30 April
	Igličara	*Belone belone*	38/3	1.3	20	1 October – 30 April
	Migavica	*Spicarasmaris*	348/116	190	24	1 October – 30 April
	Oližnica	*Atherinaboyeri*, Mugilidae	20/7	5.1	10	1 November – 31 March
	Srdelara	*Sardinapilchardus, Engraulisencrasicolus*	124/30	54	16	16 January – 14 December
	Šabakun	*Serioladumerilii*	69/27	20.6	56	All year

* = are considered active the vessels with 20 or more working days with a specific gear in the period 2009-2013.

Gear	Name	Main target species	Number of licenses/number of active vessels in 2013*	Total landings in 2013 (t)	Current smaller mesh size (mm)	Current fishing season (month)
Small purse seines	Palamidara	*Sarda sarda, Serioladumerilii*	88/25	88.4	34	All year
	Igličara	*Belone belone*	35/5	4.2	14	All year
	Ciplara	Mugilidae, *Sarpasalpa*	126/33	27.96	26	All year
	Oližnica	*Atherinaboyeri*, Mugilidae	56/12	59.7	10	1 July – 30 April

* = are considered active the vessels with 20 or more working days with a specific gear in the period 2009-2013.

For all Croatian shore seines, Republic of Croatia is requesting a derogation to operate within the isobaths of 50 m in fishing locations listed in Annex 1 of the MP. Moreover,

7Excluding purse seine net - Srdelara

Republic of Croatia is requesting the retention of the current mesh sizes for all shore seine nets, with the exception of greater amberjack seine net (šabakun).

For all Croatian small purse seines, an exemption from the provisions of Article 13, Paragraph 3 of Council Regulation No. 1967/2006 is requested. Moreover, Republic of Croatia is requesting the retention of the current mesh sizes for sand smelt purse seine net (oližnica).

STECF response in relation to each of the elements outlined in the Terms of Reference

The biological characteristics and the state of exploited resources with reference in particular to long-term yields and low risk of stock collapse;

Elements outlined in the plan
Information on biological characteristics and length/age distribution of the catches of the target species (see Tables above) are presented. No assessments of the status of the stocks are provided for the species targeted by shore seine and small purse seine, with the exceptions of *Spicara smaris* and *Seriola dumerilii*.

STECF comments

STECF notes that the state of the resources exploited by shore seines and small purse seine with reference in particular to long-term yields and low risk of stock collapse are not presented or are not available.

STECF notes that, according to the most recent assessments (STECF EWG 12-19 reviewed during the Plenary meeting held in Brussels 24-28 March 2014), the stocks of sardine (*Sardina pilchardus*) and anchovy (*Engraulis encrasicolus*) in GSA 17 (shared by Italy, Slovenia and Croatia) are subject to overfishing.

The MP states that the population of *S. smaris* is considered stable due to the absence of significant statistical differences in the catch length compositions of the period 2008-2012. STECF notes that such data are not presented in the MP and the stable length compositions of catches can be affected by other factors (selectivity and/or market demand) and it is not unambiguously related with the health of the population. In chapter 9 the MP presents Yield per Recruit models for picarel stock, evidencing that the current F (0.4) is below the F_{msy} (0.6). STECF notes that the F_{msy} considered in the MP is the F_{max} of Y/R model, while usually is common practice to use $F_{0.1}$ as proxy of F_{msy}, thus the comparison of current F should be carried out against $F_{0.1}$.
The MP presents also an evaluation of the exploitation rate of *Seriola dumerilii* stock exploited by šabakun. STECF notes that the values of total (Z) and natural (M) mortality presented were estimated in a study carried out in 2001, thus are not representative of the present stock status.

The description of the fishing pressure and the measures to accomplish a sustainable exploitation of the main target stocks;

Elements outlined in the plan
The six Croatian shore seine and four small purse seines fisheries as well as the existing management framework are described in the MP. Data concerning the number of licenses issued per district unit and numbers of active vessels according to the Register of Fishing Licence in 2013 are presented for both fisheries. Moreover for each gear technical characteristics, catch composition and size ranges of the species caught are presented.

The MP contains specific management measures (permanent or temporary cessation of fishing, authorization, spatial and temporal restrictions, minimum mesh size and minimum catch size) to keep the impact of these gears on target and non-target species and their environment at the same level as it is today.

STECF comments

STECF (Plen 13-02) has previously evaluated a management plan for Croatian purse seine fisheries. While the elements presented in the revised MP, are a significant improvement, the information is insufficient for STECF to conclude whether the fishing pressure and the measures will accomplish a sustainable exploitation of the main target stocks.

To undertake such an assessment, STECF advises that the results from scientific assessments that have been approved by scientific bodies (STECF and/or relevant RFMOs), including reference points and precautionary approaches in line with the Council Regulation (EC) No 1380/2013 are included in the MP

The data on catches, effort and catches per unit of effort (CPUE), as well as the biological reference points ensuring the conservation of the concerned stocks

Elements outlined in the plan
For the shore seines and small purse seines, the MP provides data on catches, effort and catches per unit of effort (CPUE) for the total catches and the main target species respectively for the period 2008-2012 and for 2013 only.

STECF comments

STECF notes that such data are not directly connected with a valid estimation of biological reference points and do not satisfactorily represent a baseline ensuring the conservation of the concerned stocks. Limit and target reference points in terms of fishing mortality and spawning stock biomass should be clearly outlined in the MP.

The catch composition in terms of size distribution, with particular reference to the percentage of catches of species subject to minimum sizes in accordance with Annex III of the Mediterranean Regulation.

Elements outlined in the plan

Taking into consideration the data presented in the MP is possible to observe from graphs in figure 10 and 13 that the percentages of anchovy and sardine catches below minimum sizes in accordance with Annex III of the Mediterranean Regulation represent respectively about 45% and 4% in number and 4% and 2% in weight of the total catches. However for a more precise quantification of the data should be provided in tabular form.

For other species listed in Annex III of the Mediterranean Regulation is not possible to provide such percentages because only the size ranges related to the catches of shore seine fishery are presented in the MP. However from this it is possible to affirm that shore seine catch fish below the minimum landing size; in girarica for *Mullus barbatus* and *Dicentrarchus labrax*, in oližnica for *Sparus aurata*, in srdelara for *Sardina pilchardus, Engraulis encrasicolus* and *Scomber japonicus*, in igličara for *Trachurus mediterraneaus* and in šabakun for *Scomber scombrus*, *Pagellus erythrinus*, *S. pilchardus* and *M. barbatus.*

The potential impact of the fishing gear on the marine environment with particular interest on protected habitats (i.e. seagrass bed, coralligenous habitat and maërl bed);

Elements outlined in the plan
In the MP is stated that small purse seine nets do not touch *Posidonia* beds during the fishing activities. In particular, target species of small purse seines igličara, ciplara and palamidara are mostly species that live in the upper sea layer and are therefore easy to spot.

Regarding the shore seines, the MP affirms that the pelagic shore seine nets (oližnica, šabakun, igličara and srdelara) are hauled through the water column, not trawled along the seabed, and therefore has no adverse effect on seabed habitats, including the habitats of marine phanerogam beds. The MP also states that demersal shore seine nets (migavica and girarica) touch the seabed during towing. The MP provides estimates of percentage of the area of overlap between *Posidonia* beds and shore seines fishing grounds (15.07%) and between the combination of *Posidonia* beds/Natura 2000 sites and shore seines fishing grounds (12.7%).

STECF comments

There is insufficient information presented in the MP to permit STECF to assess whether the Croatian shore seine and small purse seines has any effect on seagrass (*Posidonia oceanica*) beds, coralligenous habitat and maërl beds. The description of overlap areas between shore seines fishing grounds and *Posidonia*-Natura 2000 sites reported in the MP requires a clearer explanation in terms of details of the typology of gear used and supported also by maps with higher resolution than provided in Annex 1 of the MP.

The social and economic impact of the measures proposed

Elements outlined in the plan

The MP affirms the management measure proposed will improve the economic conditions associated with the sectors, increasing the profitability of vessels using other fishing gears, increasing the capacity of marketing the catch through multiple sales outlets and increasing the total values of the catches by 5%.

Moreover, the MP describes the socio-economic effects if the requested derogations would not be accepted. In particular the MP evidences that in the rural areas of the coast and especially on the islands, shore seine and small purse seine net fisheries are of particular importance in the winter because it provides a supply of fresh fish to rural communities, especially when weather conditions can hinder or impede food supply.

In Annex 5, the MP presents the results of research conducted by applying principles and methods used for the collection of data on fisheries for DCF purposes.

STECF comments

STECF notes that in the MP economic data and analyses justifying the increase of total values of the catches by 5% are not presented.

Although STECF acknowledges the importance of shore seine and small purse seine fisheries in rural communities in term of social and traditional values, is unable to quantify the socio-economic impacts of the management measures proposed if the requested derogation will not be accepted.

The scientific monitoring of the management plan.

Elements outlined in the plan
The MP establishes that the sampling of all target species of shore seine and small purse seine fisheries will be conducted both at sea and at the landing ports. In particular for the species not covered by the DCR National data collection programme the following biological variable will be collected: length range, mean length, amount of immature individuals, length at first maturity, sex ratio, age distribution, catches and discarded fraction. However, no further details or descriptions of sampling protocols and assessment methods to be used are provided.

Objectives that are consistent with the objectives set out in Article 2 and with the relevant provisions of Articles 6 of Regulation (EU) No 1380/2013.

Elements outlined in the plan
The MP states that due to the absence of reliable data needed for stock assessment of all target species caught by shore seine and small purse seine fisheries (with the exception of *S. smaris*) a precautionary approach in managing these resources shall be applied by implementing measures of this Plan. Thus, according to the Council Regulation (EC) No 1380/2013, the MP is drawn up on the basis of the precautionary approach.

STECF comments

As mentioned above (point 1) STECF notes that the assessment status of *S. smaris* presented in the MP is unreliable. STECF also notes that the latest evaluations of the status of sardines and anchovies in GSA 17 are not considered in the MP.
Moreover in relation to articles 2 and 6 of the Regulation (EU) No 1380/2013, the MP does not clearly consider the implementation of an ecosystem-based approach to fisheries management and the regional cooperation in the implementation of conservation measures.

Quantifiable targets such as fishing mortality rates and/or spawning stock biomass.
Clear time-frames to reach the quantifiable targets.

Conservation reference points consistent with the objectives set out in Article 2 of Regulation (EU) No 1380/2013.

The MP does not quantify the targets in terms of fishing mortality and/or spawning stock biomass for the target species of shore seine and small purse seine fisheries. The MP states that during the first 3-5 years of MP implementation, Croatia will collect as many relevant biological data as possible for the purpose of assessment of the status of stocks of target species. The MP shall be updated in due time by identification of the conservation reference points for all identified target species. However the MP does not clearly specify the time-frames and conservation reference points consistent with the objectives set out in Article 2 of Regulation (EU) No 1380/2013.

Objectives for conservation and technical measures to be taken in order to achieve the targets set out in Article 15 of Regulation (EU) No 1380/2013, and measures designed to avoid and reduce, as far as possible, unwanted catches.

The MP does not take into consideration the obligation under Article 15 of Regulation (EU) No 1380/2013. However, STECF notes that a discard plan has been assessed for mid-water pelagic trawls and purse seines covering anchovy, sardine, mackerel and horse mackerel and that this plan is due to enter into force on January 1 2015.

Safeguards to ensure that quantifiable targets are met, as well as remedial action, where needed, including for situations where the deteriorating quality of data or non-availability put the sustainability of the main stocks of the fishery at risk.

Elements outlined in the plan
The MP states that in the case monitoring results show that the objectives (i.e. to ensure the maintenance of the stocks exploited by shore seine and small purse seine fisheries within safe biological limits) are not being realised in the planned period, the following measures will be implemented:

- further reduction of the capacities through exclusion (revoking authorization) of vessels from fishing;

- expansion of spatial restriction (prohibiting fishing in certain subzones, on certain fishing grounds, at certain posts, etc.) and/or extension of temporal fishing bans.

STECF comments

STECF notes that the MP does not consider the possibility of deterioration of quality of data or non-availability.

Other conservation measures, in particular measures to gradually eliminate discards, taking into account the best available scientific advice, or to minimise the negative impact of fishing on the ecosystem.

Elements outlined in the plan
The MP will implement the following conservation measures:

- technical measures, involving temporal limitations for fishing and permanent or temporary fishing bans, to safeguards marine biodiversity;
- special measures for reducing the impact of fishing activities on the marine environment and non-target or economically unimportant species;
- protection of areas which are further classified as special habitats (where fishing is generally prohibited) and areas where fishing is specially regulated (where a certain form of commercial fishing is permanently banned);
- regulating measures for fishing that stipulate fishing fees, issuing requisite documents for fishing activities, revision of certain rights concerning the fisheries, etc;
- fishing fleet management measures, involving the fixing of fleet, the entry and exit from the fleet and the number of licences issued for a certain gear type;
- catch monitoring measures that regulate the requirement of submitting relevant data to the competent authority, landing of the catches at designated locations, submitting data on first sale, etc.

Quantifiable indicators for periodic monitoring and assessment of progress in achieving the targets of the management plan.

Elements outlined in the plan
The MP designate the following indicators for periodic monitoring and assessment of progress in achieving the targets of the management plan:

- Biological: mortality parameters and biomass indexes for target species.
- Economic: average value of catch at first sale/vessel.
- Social: number of licences, number of active vessels and in the case of shore seine nets number of participant in the fisheries.

STECF conclusions

From the elements provided in the MP, STECF is unable to assess if the stocks targeted by shore seine and small purse seine fisheries are being sustainably exploited. The target species of both fisheries, with the exception of *S. pilchardus* and *E. encrasicolus*, are not assessed in the framework of the relevant scientific bodies, thus a precautionary approach has been considered in the management measures outlined in the MP. However, STECF notes that the baseline (reference) values used for the biological indicators may not be fully consistent with the objectives set out in Article 2 of Regulation (EU) No 1380/2013.

The information provided in the MP represent an improvement of what has been evaluated during STECF PLEN 13-02 in the case of small purse seines. However the elements are insufficient to permit STECF to determine whether both typology of gears do or do not touch the seagrass bed during fishing operations. Furthermore, it is not possible, from the information provided, to assess whether or how often fishing operations take place over *Posidonia*beds or, in the case of small purse seine nets, whether they overlap of a significant fraction of the areas occupied by *Posidoniaoceanica* or other marine phanerogames.

Given the available information, STECF is also unable to conclude on the potential impact of the requested derogations.

In order to fully assess the impact of the requested derogations, the following additional information, is required for each of the six shore seines and four small purse seines:

- Estimates of monthly catch volumes separated into landings and discards by species (including non-target organisms) and corresponding size compositions from catches taken outside and inside 300 meters from the coast / 50 m isobath zone and, in the case of small purse seines, at depths less or more than 70% of the overall drop.
- Quantitative information about monthly fishing effort outside and inside the 300 meters of the coast / 50 m isobath zone and, in the case of small purse seines, at depths less or more than 70% of the overall drop.
- Estimates of monthly catch volumes separated into landings and discards by species (including non-target organisms) and corresponding size compositions from catches taken using the current mesh sizes and those prescribed Mediterranean regulation.
- An assessment of the socio-economic impacts of the plan.

Request for review of the management plan Boat seines fishing transparent goby (*Aphiaminuta*) in Manfredonia, Italy

The objective of the "*National management plan for derogation to mesh size and distance from the coast (Reg. (EC) N. 1967/2006, Art. 9 and 13) regarding the fishing of transparent goby (Aphiaminuta) with the boat seines in the Manfredonia fishing district*" submitted by Italy is to preserve the exploitation of transparent goby through the conversion of vessels currently using trawls to the use of seine nets.

STECF notes that traditionally, fisheries for transparent goby in the Manfredonia were conducted using trawls rather than boat seines which are used in other areas. However, due to the prohibition of trawling in waters less than 3nm from the coastline or in waters shallower than 50m (EC regulation 1967/2006), the last transparent goby fishing season for the Manfredonia fleet using trawls occurred during the winter/spring 2010. Subsequently, national pilot projects were initiated to determine the feasibility of using seines as an alternative capture method. The management plan presented relates to fisheries targeting transparent goby with seines on the basis that such gears have a lower impact than demersal trawls and thereby meeting the objectives of article 5 of EC regulation (1967/2006) in that they can be demonstrated to have "*no significant impact on the marine environment*" and on this basis the gears are eligible to be considered for derogation from minimum mesh size and are permitted to be used within 3nm from the coastline/in waters shallower than 50m.

The MP includes a description of the transparent goby fishery with trawlers in the Gulf of Manfredonia (1996 to 2009-2010 fishing seasons); reports on two feasibility studies on the use of boat seines, the first one carried out between the end of 2011 and beginning of 2012 (3 vessels) and the second from April 2012 to May 2013 (100 vessels); and on one experimental fishing campaign carried out in March and April 2014.

STECF observations in relation to each of the elements outlined in the Terms of Reference

The biological characteristics and the state of exploited resources with reference in particular to long-term yields and low risk of stock collapse

Elements outlined in the plan
The biology and ecology of *Aphia minuta* are well described, noting that *Aphia minuta* is a gregarious small species, with a short life cycle, usually lasting only one year and that the largest schools are found inside three miles from the coast. Information on its biology and ecology (e.g. reproduction period, size at first maturity, duration of the larval phase, bathymetric and spatial distribution pattern during its life cycle), are presented.

STECF comments

STECF notes that there is no information presented regarding the current stock status or any analysis that can be used to determine the long-term yield that would be consistent with minimising the risk of stock collapse.

STECF notes that the Leslie- De Lury depletion model was used to estimate the initial biomass of the transparent goby stock in previous fishing seasons. However, this cannot be used to determine the current stock status.

The description of the fishing pressure and the measures to accomplish a sustainable exploitation of the main target stocks

Elements outlined in the plan

Information on fleet capacity (number of vessels) and fishing effort (fishing days) is presented for the trawl fleet that traditionally targeted the transparent goby for the period 1996 to 2009-2010. In 11 of these 14 fishing seasons the number of licenses issued was 50, and the mean number of fishing days by boat in that period, per season, was 77.

The MP proposes freezing the number of boat seines authorizations to 100 (the vessels involved in the feasibility studies on the use of boat seine), and the maximum number of fishing days to 5000. The total number of fishing days per season proposed is similar to that in the more recent period 2005-2010.
Using data from the now ceased trawl fishery, the management plan proposes that a management trigger based on a minimum CPUE for the fishing season (15 kg per day and vessel) is used to enact measures to reduce fishing effort as follows: *i)* in case this value is not attained for three consecutive years, the fishing season would be reduced by two months and the number of fishing days to 3000; *ii)* if the CPUE does not return to the reference value in the following two years, the fishing activities would be suspended for one year (page 80)..

STECF comments

There is no information presented regarding the current exploitation status of transparent goby.

The efficacy of the CPUE trigger has not been evaluated in terms of its appropriateness in accomplishing sustainable exploitation of the target stock. Furthermore, there is no consideration given to the potential changes in catchability associated with the switch from trawl to seine nets which may be substantially higher. STECF considers that setting management reference points without due regard for changes in catchability is inappropriate and could lead to overexploitation of the stock.

Although the MP is proposed for three years, and the possibility of an extension for three additional years is mentioned, according to the proposed management measure based on a minimum CPUE for the fishing season, no measures to reduce fishing effort would be considered in the three years of the MP implementation.

The data on catches, effort and catches per unit of effort (CPUE), as well as the biological reference points ensuring the conservation of the concerned stocks

Elements contained in the plan

Data on CPUE (daily total catch per vessel and transparent goby daily catch) are given by season for the trawl fleet targeting transparent goby for the period 1996 to 2009-2010. Transparent goby represented between 30% and 40% of the total catch. The daily transparent goby catch per day and vessel varied between a maximum value of 25 kg/day/vessel in the 1997 (130 licenses) and 2000 (50 licenses) fishing seasons, and a minimum value of 12 kg/day/vessel in 1998 (50 licenses). The total transparent goby landings by season are estimates from the results of specific monitoring activities Over the period 1996 to 2009-2010 the transparent goby landings ranged between around 244 t in 1997 and 52 t in 1999 (50 licenses).

From the cumulative distribution of the monthly transparent goby CPUE (kg/day/vessel) in the period 2005-2010 the mean CPUE and the lower percentile (25%) were identified as 19 and 15 kg/day/vessel respectively.

The lower percentile (15 kg/day/vessel) is proposed as reference (trigger) point for the definition of harvest control rules (see above).

STECF comments

The daily yields reported for the feasibility study on the use of boat seines conducted in 2013 and the experimental survey in 2014 were much higher (51.8 and 63.1 kg/day/vessel respectively) than that obtained by the trawl fleet (19 kg/day/vessel).

The proposed CPUE reference (trigger) value of 15 kg/day/vessel was estimated from the historic *trawl* fleet yields (2005-2010). The appropriateness of this value for the seine fishery is uncertain, but given that the CPUE of seines is likely to be significantly higher (~ 3 times) that of trawls, the trigger value requires further analysis.

The catch composition in terms of size distribution, with particular reference to the percentage of catches of species subject to minimum sizes in accordance with Annex III of the Mediterranean Regulation

Elements contained in the plan
The size distributions of transparent goby caught during two studies to test the feasibility of the use of the boat seine (2012 and 2013) and the experimental campaign in 2014 are presented. The range of sizes of these distributions is wider than that observed in other Mediterranean areas (e.g. Tuscany or Catalan Coast), and both juveniles and adults are observed in the catches.

The information presented regarding by- catch was collected during the experimental survey in March- April 2014. By-catch represented less than 10% of the total catch and the main by-catch species are mentioned (*Squilla mantis, Arnoglossus laterna, Bolinus brandaris, Aporrhais pespelecani*), some of them subject to minimum size *(Sardina pilchardus, Engraulis encrasicolus, Merluccius merluccius, Diplodus annularis, Mullus babatus*).

STECF comments
No size distributions of by-catch species are provided, but it is noted that the individuals were all larger than the minimum size.

The potential impact of the fishing gear on the marine environment with particular interest on protected habitats (i.e. seagrass bed, coralligenous habitat and maërl bed);

Elements contained in the plan
The position of the experimental hauls performed during the training days 2012 and 2013 is presented in two maps.

STECF comments

Given that no information is provided on the protected habitats in the area where the fleet targeting transparent goby operates, it is not possible to assess the potential impact of the boat seine on the marine environment.

The social and economic impact of the measures proposed

Elements outlined in the plan
Two socio-economic assessments are presented, the first one regarding the trawl fleet (LOA<15 m) that traditionally fished transparent goby, until 2010; and a second one aimed at comparing the Manfredonia fishing fleet in 2009-2010 and in 2013 and 2014. A number of economic and social indicators are contained in the MP.

STECF comments

STECF notes that the value of transparent goby, although very variable from year to year, was in the past significantly higher than that generated from the catches of the other species. It is estimated that between 2010 and 2011 vessels with LOA < 15 m lost more than 30% of their profits due to the combination of low/stagnant prices, the substantial increase of operating costs and the loss of income from transparent goby. The 2013 and 2014 results indicated that transparent goby sales represented 63% and 44% of the turnover.

The scientific monitoring of the management plan.

Elements outlined in the plan
The MP notes that catch and effort information for each vessel will be recorded on a daily basis and this data will be entered into a database. In addition it will be mandatory to provide catch samples for the purposes of gathering biological data e.g. length composition, sex, stomach analysis, maturity etc. At sea observers will also be deployed to gather *in situ* information on fishing operations and catch composition. In addition, a suite of economic and social indicators will also be collected.

STECF comments

The scientific body responsible for the monitoring of the transparent goby fisheries in the Gulf of Manfredonia and assessment of the results of the implementation of the MP has not been identified. Given that the harvest control rule (CPUE trigger) will be used as the key indicator to trigger management actions (e.g. in-season closures; restrictions on future fishing season), it is important that the monitoring system is established so as to ensure that management intervention is sufficiently informed and therefore responsive enough to minimise the risk of exceeding the thresholds specified in the harvest control rule (CPUE trigger).

Objectives that are consistent with the objectives set out in Article 2 and with the relevant provisions of Articles 6 of Regulation (EU) No 1380/2013;

Elements outlined in the plan
The MP acknowledges that there are no biological or exploitation reference points currently available for transparent goby due to a lack of analytical assessment. The proposed management plan includes trigger values based on the observed CPUE which would be used to enact more restrictive management actions e.g. fishery closures and/or effort limits.

STECF comments

As noted above, for small scale, data limited and multi-user/multi-state stocks it is often not possible to undertake full analytical assessments meaning that it is not possible to determine the stock status or exploitation levels relative to MSY considerations.

Given the absence of a more detailed analysis and the fact that the CPUE trigger values are based on historic trawl (not seine) data, it is not possible to determine whether these present sufficient safeguards to avoid overexploitation.

Quantifiable targets such as fishing mortality rates and/or spawning stock biomass;

Elements outlined in the plan
There are no biomass or exploitation reference points defined. A CPUE trigger is proposed that would initiate management responses once the CPUE observed in the fishery dropped below 15Kg/day/vessel.

STECF comments

The appropriateness of this trigger to ensure long-term sustainability or long term maximum yield has not been evaluated.

Clear time-frames to reach the quantifiable targets;

Elements outlined in the plan
The intention is to implement the MP as soon as it is approved. It is proposed to undertake annual monitoring and stock assessments. The only quantifiable limit reference point proposed is the overall value of 15Kg/day/vessel (see above).

STECF comments

The harvest control rule based on the CPUE trigger requires real time monitoring in order to minimise the risk of the threshold being exceeded. While the MP specifies that the appropriate catch and effort data will be collected, there is insufficient information presented to assess whether the data will be analysed (or by whom) in an appropriate time frame to allow for timely management action.

Conservation reference points consistent with the objectives set out in Article 2 of Regulation (EU) No 1380/2013;

See points above

Objectives for conservation and technical measures to be taken in order to achieve the targets set out in Article 15 of Regulation (EU) No 1380/2013, and measures designed to avoid and reduce, as far as possible, unwanted catches;

Elements outlined in the plan
It noted that catches of species below minimum size will be landed but not sold for human consumption. No measures are designed to avoid or reduce unwanted catches.

STECF comments

STECF notes that there are no discard plans proposed for this stock.

Safeguards to ensure that quantifiable targets are met, as well as remedial action, where needed, including for situations where the deteriorating quality of data or non-availability put the sustainability of the main stocks of the fishery at risk;

Elements outlined in the plan
It is indicated that the MP should ensure the continuous estimation of the CPUE reference points, with the aim to evaluate the attainment of the management measures and undertake, if needed, corrective actions.

SPECF comments

The MP does not consider the possibility of deterioration in the quality of data or non-availability of data.

Other conservation measures, in particular measures to gradually eliminate discards, taking into account the best available scientific advice, or to minimise the negative impact of fishing on the ecosystem;

Elements outlined in the plan

- The use of seine nets on fishing vessels targeting the species *A. minuta* is only permitted in the period from 1st November to 31st May each year.

- The authorised vessels can only catch during daylight hours, from an hour after dawn until sunset. Night time fishing with the support of light sources is forbidden.
- The MP will only apply to the waters of the Manfredonia fishing district. Within this area the authorized vessels will be **also** permitted to fish in the area within 3 miles from the coast.
- Restrictions on the size of the fishing gear: the length of the cork line of the net must be no longer than 300 m and must be equipped with neutral buoyancy in order to avoid or reduce to the minimum level the impact with the seabed.
- The use of nets with a stretched mesh size between 3 and 5 millimetres is allowed.
- Limitations on bycatch and accidental catch: accidental catch of juveniles of other species should not exceed the 5% of the daily catch in terms of weight and any specimens caught should be released. Bycatch must not exceed 10% of daily catch in terms of weight and must be registered on the logbook or on the transparent goby catch data form (for the vessel smaller than 10 m).

STECF comments

STECF notes that the available information on boat seine by-catch is very limited and no data on discards is available.

No measures to gradually eliminate discards are proposed. It is indicated that in the 2014 experimental survey by-catch represented less than 10% of the total catch, and the by- catch species are mentioned, some of them with minimum landing size (*Sardina pilchardus, Engraulis encrasicoclus, Merluccius merluccius, Diplodus annularis, Mullus barbatus*), and other species without minimum landing size (*Squilla mantis, Arnoglossus laterna, Bolinus brandaris, Aporrhais pespelicanus*). Vessel operators are required to record by-catch species and the corresponding weight by species.

STECF notes that the use of boat seines will be permitted from 1 November to 31 May and that the concentration of juveniles of other species in the fishery area, although mentioned in the MP to bevery low (no supporting documentation provided), could be expected (e.g. sardine juveniles).

Quantifiable indicators for periodic monitoring and assessment of progress in achieving the targets of the management plan.

Elements outlined in the plan
A CPUE of 15 kg/day/vessel estimated from the *trawl* fleet yields (2005-2010) is proposed as reference value which will be used to trigger management intervention in circumstances when the observed CPUE falls below 15Kg/day/vessel.

STECF comments

The appropriateness of this value, which has been derived from historic *trawl* catch and effort, for the seine fishery is uncertain. Given that the CPUE of seines is likely to be higher than that of trawls, the suitability of this value should be subject to further evaluation.

STECF notes that how the CPUE trigger will be used in practice is unclear since different approaches are proposed The MP notes that (i) "*in case the **average annual catch** per unit effort (CPUE) falls below the limit reference point……during one of the three years of the Plan, the… fishery is suspended from the end of February of the same year.*" It is unclear how an average annual CPUE value can be used to trigger management action **within** a fishing season. Furthermore, the MP stipulates that (*ii)* if CPUE is lower than this reference for two consecutive years, fishing in the following season will need to be restricted (page 43); and elsewhere it is noted that (*ii)* in case the annual CPUE is below this value for three consecutive years, corrective management action would be required (page 80); this would mean that, assuming a duration of three years for a MP, no corrective measure would be taken during the period of the MP.

STEC considers that further clarity of how the CPUE trigger will be applied in practice is required.

STECF notes that a "traffic light" approach is proposed for the socio-economic indicators for the monitoring and assessment of the economic performance of the boat seine fishery. However given that the economic and social impact of the boat seine fishery has to be evaluated, the reference points are not yet available.

STECF conclusions

From the elements presented in the MP, STECF is unable to assess if the transparent goby stock will be exploited at a sustainable level.

The information presented on total catch, catch of transparent goby and associated fishing effort/capacity during the period 1996 to 2009-2010 relate to the *trawl* fleet targeting transparent goby, <u>not</u> from vessels using boat seines, for which the derogations are being requested.

The proposed Management Plan aims to cap fishing capacity and effort at the level of 100 vessels with a maximum of 5000 vessel days noting that the *trawl* fishery was considered sustainable with this level of capacity and effort in the past. STECF notes that the number of licences for trawlers targeting transparent goby was much smaller than that proposed (50 in 11 of the 14 fishing seasons for which information is provided).

STECF notes that the mean CPUE observed for the trawl fleet during the period 1996 to 2010 (after which the fishery ceased to operate) were relatively stable with a mean catch rate of ~19Kg/vessel/day throughout the period whereas the CPUE observed during the pilot studies for seine nets were almost three times higher for the same unit of effort (52Kg/day/vessel in 2013 and 63Kg/day/vessel in 2014).

While STECF acknowledges that the yields from the experimental seine fishery may be higher due to the closure of the trawl fishery since 2010, and this may partly explain the differences in CPUE between the trawl and seine data. However, given the lack of directly comparable CPUE data i.e. trawl and seine CPUE data from the same season, and adopting a precautionary approach, STECF considers it appropriate that the maximum amount of fishing days proposed be reduced to account for potential increases in catchability associated with the switch from trawls to seine nets. This could be based on the ratio of average trawl CPUE/seine CPUE, meaning that effort should be reduced to approximately 33% of the levels proposed in the plan (i.e. 1,650 days).

The plan proposes a trigger reference point where corrective actions are taken to reduce fishing effort once the trigger has been reached. When catches fall below 15kg/vessel/day, a number of measures are instigated including in-season closures and closed seasons. The time frame for implementation of corrective actions needs to be clarified.

STECF notes that the CPUE trigger value is based on the average daily yields from the *trawl* fishery (2005-2010) and applying the same logic as above, means that the trigger value should be set to consider the potential increase in catchability associated with the switch from the trawl to the seine net implying a rescaling of the trigger value from 15 kg/day to 45 kg/day.

STECF suggests that a recurring data collection programme be initiated for the collection of all the necessary information to be used as a scientific basis for the definition of an adequate management of the boat seine fishing gear in the Manfredonia fishing district. This should gather data on catch composition, including all organisms caught and their landed proportions, together with corresponding size compositions. For each haul, information should be collected on the time, location, gear dimensions and fishing effort deployed.

Request for review of the management plan for Mechanised dredges in Catalonia, Spain.

STECF general observations

The fishing activity with mechanized dredges targeting shellfish species is traditionally performed by small- vessels in Catalonia. *Donax* spp. and *Chameleagallina* constitute the main exploited species of the fishery, but also *Calliste chione* is (or was in the past) an important target. Vessels operate along the coasts in the depth range 0.5 to 30m, on sandy-muddy grounds where such resources are more concentrated.

The main goal of the plan is to maintain the continuation of the existing fishing for shellfish species within the coastal zone (<3nm) by defining sustainable limits for fishing pressure and demonstrating the limited impact in order to comply with Council Regulation (EC) No 1967/2006.

Total catches using mechanized dredges decreased from ~1,600 tons/year at the beginnings of the '90s to 40-100 tons/year in the period 2000-2013. It is not clear whether such reductions were due to over exploitation, natural population fluctuations or due to other anthropogenic factors which have negatively impacted on productivity e.g. extraction of substrate or a reduction in nutrient loading from rivers.

The main biological features of the exploited species are described as well as the main characteristics of the fisheries. However, not all the necessary information needed for assessing the current status of the stocks is presented. There is very limited information regarding species composition, size distribution of the landing and discards; the proportion of the catch discarded.

The Management Plan sets specific exploitation limits (yearly catches, effort) for each bivalve mollusc stock in each of the fishery zones.

For stocks where the catch levels have been stable over the past 5 years, the average catch is used as the basis of setting future annual catch limits and these are considered to be sustainable.

In the case of *Calliste chione*, which has seen a dramatic decline in catches and the stock is considered as collapsed; a complete closure of the fishery is proposed. In the case of the other 2 stocks, status quo catches or for some stocks/area a modest reduction in removals is proposed. The MP states that an adaptive management approach will be enforced to successively adjust catches depending on observed changes in abundance or in the structure of the populations.

The MP notes that both effort and landing limits will be combined with of technical measures (size of the gears, seasonal fishing bans, areas, bigger minimum landing sizes, enhancements of the selectivity of the gears) to ensure sustainable exploitation of the stocks.

The MP notes the need for derogation from paragraphs 1 and 2 of article 13 of the Council Regulation (EC) No 1967/2006 which prohibits the use of towed gears inside 3nm from the coastline and the use of boat and hydraulic dredges 0.3nm from the coast. The conditions for a derogation are "*where the fisheries have no significant impact on the marine environment and affect a limited number of vessels, and provided that those fisheries cannot be undertaken with another gear and are subject to a management plan*" and where "*Member States shall provide up to date scientific and technical justifications for such derogation*." The MP states that most of the exploited resources live within the 0.3 miles coastal stripe and hence they are obliged to fish within this depth interval over sandy-muddy grounds and they are not able to operate with any alternative gear.

The MP notes that by-catch is composed by other bivalves of minor commercial importance, echinoderms and a minor proportion of finfish. Some limited available data suggest that by-catch represents less than the 10% of the overall catches and this should justify the request of derogation. The request of derogations is also supported by the

declared minimum impact on the marine environment produced by the limited number of vessels involved in the fishery.

Socio-economic considerations are not considered in the MP.

STECF observations in relation to each of the elements outlined in the Terms of Reference

The biological characteristics and the state of exploited resources with reference in particular to long-term yields and low risk of stock collapse;

Elements outlined in the plan
The main biological features of the exploited species are included in the Plan. For the main species, information on size of first maturity, spawning and size of recruitment to the fishery is provided. A short time series (2009-2013) of landings is provided for the main species.

STECF comments

STECF notes that there is no information presented regarding the current stock status or any analysis that can be used to determine the long-term yield that would be consistent with minimising the risk of stock collapse.

The MP notes that the current level of landings, for most of the species concerned, has been stable for the period 2009-2013 and therefore considers that such levels are sustainable and that such catch levels can be used as the basis for reference points. Based on the partial information provide in the MP, STECF notes that catches and CPUEs were considerably higher during the 1980's. STECF considers that stocks are likely to have been subject to overexploitation in the past and setting reference catches in the MP based on recent trends is not appropriate and does not provide sufficient basis for minimising the risk of stock collapse.

The description of the fishing pressure and the measures to accomplish a sustainable exploitation of the main target stocks;

Elements outlined in the plan
The MP proposes to maintain or reduce catches relative to the average (2009-2013) biomass (landings) depending on species. Future fishing opportunities will be determined by adjusting the reference catch by the trends in catches observed in the fishery. The MP states that following the precautionary approach, exploitation of Coquina (*Donax spp*) in the Delta del Ebro will be maintained at current levels and to lightly reduce exploitation in the Central-South and North Zone-Roses areas. It is proposed to reduce exploitation levels of chirla (*Chamelea gallina*) in the three fishing areas and to close the fishery of almejón *Calliste chione* in the Central North Zone until signs of recovery can be observed. In addition, the MP states that measures to reduce fishing effort will be implemented to increase stock biomass.

Specific licences to exploit shellfish stocks are required and these are limited to a number of vessels which have a historical track record in the fishery.

The number of special licences of fishing shellfish with mechanized dredges currently in force is as follows:

Delta del Ebro=9;
Central Catalunya area-central South Zone=10;
Central zone of Catalunya- Maresme=6;
North Catalunya-Bahia de Roses=9.

In addition, effort limits are also applied for vessels targeting shellfish. These are specified as follows:

North Catalunya:
- targeting *Donax spp*: 286;
- targeting *C. gallina*: 101

Central Catalunya:
- a) Central South:
  - targeting *Donax spp*: 583
  - targeting *C. gallina*: 60
- b) Central North-Maresme
  - targeting *C. chione*: closure in place

Delta del Ebro:
- targeting *Donax spp*: 714

Limitations on the structural characteristics of the vessels operating with mechanical dredges in this area are also enforced.

STECF comments

STECF considers that fixing fishing opportunities based on recent catch levels is unlikely to achieve sustainable exploitation of the stocks concerned. STECF is unable to assess the potential impacts of the current effort limits.

The data on catches, effort and catches per unit of effort (CPUE), as well as the biological reference points ensuring the conservation of the concerned stocks;

Elements outlined in the plan
Catch (landings) data for the period 2009-2013 are provided in the MP and some partial catch data relating to previous years.

STECF comments

STECF notes that the limited information presented suggests that landings and CPUE for most of the exploited stocks were much higher in the past indicating the biomass levels were higher prior to the reference period (2009-2013). STECF notes that effort data are incomplete. There are no biomass or limit reference points defined in the plan.

STECF is therefore unable to assess whether the MP is consistent with ensuring the conservation of the stocks concerned. Furthermore, given that stock biomass levels were likely to have been significantly higher in the past, it is likely that the stocks are currently overexploited.

The catch composition in terms of size distribution, with particular reference to the percentage of catches of species subject to minimum sizes in accordance with Annex III of the Mediterranean Regulation;

Elements outlined in the plan
There is a general paucity in the amount of information provided regarding the composition of landings as well as on the discarded fractions of the target species and by-catch.

STECF comments

STECF notes that the MP states that the target species almost always represent over the 90% of the catches.

However, STECF notes that by-catch of the mechanized dredges fisheries is significant. Based on the available information, in the *Donax spp* fishery, by-catch is mainly constituted by non-commercial decapod crustacean species (46%), followed by bivalves of low or null commercial importance (36%) and a minor proportion (about 5%) of finfish (*Trachinus sp*, *Echinichtys vipera*, *Lithognatus mormyrus*). For the vessels targeting *Chamelea gallina* , other bivalves of low commercial value constitute the main by-catch (45%) followed by echinoderms(25%), gasteropods (11%). In the *Calliste chione* fisheries, bivalves clearly dominate (77%), followed by echinoderms (18%), and 4% are gastropods, crustaceans and finfish.

STECF notes that there is no data presented on size composition of the individuals landed or discarded presented or on the sizes of other accompanying species of molluscs, finfish, etc. Details regarding catch composition of finfish are very scarce. *Lithognatus mormyrus* is the only fish species listed in the catch records which has a minimum lading size (20cm) already enforced in the Mediterranean. The size frequencies of the individuals of the mentioned species caught in the fishery as by-catch is not provided but it is likely they are mostly small-sized individuals given the inshore location of the fishery.

The potential impact of the fishing gear on the marine environment with particular interest on protected habitats (i.e. seagrass bed, coralligenous habitat and maërl bed);

Elements outlined in the plan
General considerations on the environmental impact of the dredge fisheries are outlined in the plan.

STECF comments

Fishing operation may be exerted too close to the shore, where *Posidonia* beds or other sensitive habitats can be found.

STECF notes that the specific habitat characteristics of the target species shellfish and the impracticality of operating dredges in areas with high densities of marine plants e.g. due to clogging, is likely to limit the impact of with dredges with respect to seagrass. However, STECF notes that dredges can severely impact on other sensitive habitats, other benthic organisms of the infauna or attached epifauna and can also result in significant unaccounted mortality of organisms that come into contact with the gear but are not retained (FAO ref). The severity of the overall environmental impact will depend on the scale and intensity of the fishing activity. It is stated in the MP that the negative effects of a single passage of a dredge can be relatively limited. However STECF notes that continuous and systematic fishing disturbance may produce important long-term changes in benthic communities.

STECF considers that there is insufficient information presented to allow for an assessment of the potential impact of the dredge fisheries on the marine environment.

The social and economic impact of the measures proposed;

Elements outlined in the plan
The MP does not consider the social and economic impact of the proposed measures

STECF comments

See above

The scientific monitoring of the management plan.

Elements outlined in the plan
In the MP the Dirección General de Pesca y Asuntos Marítimos list the necessary information for a sound management of the different fishing grounds and stocks.

Several indicators will be defined to be monitored as regards:
- water quality
- size structures
- catches
- Number of comprehensive daily trips
- Number of vessels involved and individual daily trips.
- Evolution of the daily catches, by vessel and total.
- By-catch species composition in the period when the gear is utilized
- Economic value of the catch, by vessel, trip and total
- On board observers of the fishing operations.
- Study on the catch spatial distribution.

- Evolution of the size structure of the catches by species for at least 3 years.
- A precise localization of the more important and exploited fishing grounds through the use of GPS during the commercial fishing operations.
- Sampling of biological and oceanographic material.
- Collection of random defined samples of the catches from different vessels

STECF comments

STECF considers that the proposed parameters are adequate for the monitoring of the fishery and to provide the basis for future management.

Objectives that are consistent with the objectives set out in Article 2 and with the relevant provisions of Articles 6 of Regulation (EU) No 1380/2013;

Elements outlined in the plan

The MP states that the impact on the benthic community is environmentally sustainable in the long-term and the fishery will be managed also consistently with the objectives of achieving economic, social and employment benefits.

The MP considers that setting catch limits at the level of the reference years (2009-2013), and adjusted, based on the future monitoring of a list of variables e.g. catch and effort, is precautionary.

STECF comments

It was observed a drastic reduction of some of the main resources (*Chamelea gallina*, *Calliste chione*) occurred in the last decades followed by the current low but apparent stable biomass levels. The proposed actions are unlikely to restore stocks to levels that are capable of producing the maximum sustainable yield within the timeframes specified in EU (reg) 1380/2013.

There is any proposal of changes in the fishing gears, activity or modalities of operation aimed at reducing the negative impacts on the marine ecosystem. There is no information that allows defining the impact on the not caught individuals but within the path of the gear which are often damaged by the mechanic action and remain for a certain time more exposed than usual to predation. Moreover, no information is reported on the conditions of non-commercial invertebrates or finfish that are thrown away after being caught.

The goal expressed in the new CFP of a gradual elimination of discards is not addressed in the MP. Neither Socio-economic aspects are addressed in the plan.
It is stated that the fishing capacity of the fleets will be adjust to levels of fishing opportunities consistent with available resources with a view to having economically viable fleets without overexploiting marine biological resources.

Quantifiable targets such as fishing mortality rates and/or spawning stock biomass Clear time-frames to reach the quantifiable targets;

Elements outlined in the plan
The MP does not specify specific exploitation or biomass targets.

The MP notes that performance will be continuously monitored. The Control Commission (Comisión de Seguimiento) will meet at least once each year for the evaluation of the evolution of the fishery and for proposing any possible change in the way the fishery is managed. At the end of the 3rd year of the enforcement of the MP, the Control Commission will assess the results produced during the scientific monitoring, paying special attention on whether the enforced measures have produced some improvement in biomass and stock status of the exploited resources and on the profitability of the activity. A written report containing information on the results derived from the management actions will be sent at this time to the European Commission.

Conservation reference points consistent with the objectives set out in Article 2 of Regulation (EU) No 1380/2013;

Elements contained within the plan
See above

STECF comments

STECF notes that no fishing mortality or biomass reference points that are consistent with Article 2 of Reg. (EU) No. 1380/2013. As an alternative, the MP uses historical average catch as a proxy for MSY. STECF considers that reference catch levels however are unlikely to be in agreement with the objectives of achieving long term sustainability or achieving maximum yields given the available data (current and historic catch rates). Moreover, productivity of the grounds is likely that had shown important changes mainly due to other anthropogenic factors such as sand extraction and reduction of flow of nutrients towards the sea derived from the enforcement of measures linked to the Water Framework Directive (2000). Whenever such conditions persist, it is unlikely that biomass will recover to the former levels.

Objectives for conservation and technical measures to be taken in order to achieve the targets set out in Article 15 of Regulation (EU) No 1380/2013, and measures designed to avoid and reduce, as far as possible, unwanted catches;

Elements outlined in the plan
There is no reference to discard plans for the fisheries concerned

STECF comments

STECF notes that demersal species subject to minimum size limits in the Mediterranean are not subject to the landing obligation until 1 January 2017 (Article 15.1(d) Regulation (EU) 1380/2013) and should therefore be considered under the auspices of the proposed MP.

Other conservation measures, in particular measures to gradually eliminate discards, taking into account the best available scientific advice, or to minimise the negative impact of fishing on the ecosystem;

Elements outlined in the plan
The Plan has defined a minimum landing size for *Donax spp* (25mm) and *Callista chione* (60mm) even though no size limits are defined in the Annex III of the Mediterranean Regulation for those species.

STECF comments

STECF notes that the MP does not foresee projected changes in gears, operative strategy, effort allocation or other technical measures aimed at a gradual reduction of discards or aimed at minimizing the impact of fishing on the ecosystem.

Quantifiable indicators for periodic monitoring and assessment of progress in achieving the targets of the management plan.

Elements outlined in the plan
A number of parameters are identified in the plan (see "*The scientific monitoring of the management plan".).* The MP foresees periodic analysis of a series of monitored variables undertaken by scientific staff with responsibility for the evaluation of the sustainability of the activity (as regards effort, catches by species and area, and CPUEs) and for identification of issues that may require management intervention. The MP notes that management decisions will be taken in agreement with the ad-hoc Commission of Control as defined in the MP. Changes in biomass (CPUE) will be used as a metric for assessing progress towards management measures.

In addition, the MP proposes that physical, chemical and oceanographic parameters will also be monitored. The objective is to explore the relationship between other anthropogenic and natural variation in environmental conditions to assess whether these are likely to have had any influence in the observed changes in biomass in the past, and hopefully provide a basis for forecasting future stock development. IN addition, the MP notes that improvements and enhancements in data will allow the definition of more informative and robust indicators and the definition of MSY-related Reference Points.

STECF conclusions

The Management Plan provides information on fisheries, target species, gear, fishing grounds, etc. However, from the elements provided in the MP, STECF is unable to assess if the stocks targeted by the dredge fisheries are being sustainably exploited. Given the lack of information on stock status and exploitation rates, the MP proposed to use the recent average catches (2009 – 2013) and to adjust these in future depending on trends in biomass as derived from commercial CPUE indices. However, STECF notes that the baseline (reference) values used for the biological indicators are unlikely to be

consistent with the objectives set out in Article 2 of Regulation (EU) No 1380/2013 given that, from the limited amount of information provides, catches and CPUE were considerably higher in periods below the reference years proposed. STECF considers that fixing or modulating future fishing opportunities using the reference period proposed is likely to result in the continued over exploitation of the stocks concerned and are therefore not considered to be precautionary.

STECF were unable to assess the environmental impact of the fishery on the ecosystem and benthic community as insufficient information was presented and are therefore unable to determine whether the MP are in accordance with the provisions of paragraphs 2 and 9 of article 13 of Council Regulation (EC) No 1967/2006.

6.10. Identification of the main associated species in the turbot fishery (Black Sea)

Background

The FAO defines "associated species" as those species that: (i) prey upon the target species; (ii) are preyed on by it; (iii) compete with it for food, living space, etc.; or (iv) co-occur in the same fishing area and are exploited (or accidentally taken) in the same fishery or fisheries. A precise identification of the associated species seems therefore essential for the establishment of adequate management measures consistent with the ecosystem approach to fisheries.

In the Black Sea, turbot (*Psetta maxima*) are mainly caught with gillnets and bottom trawlers. These demersal fisheries can have significant by-catch of other non-target species such as *Raja clavata*, *Squalus acanthias*, *Acipenser spp*. and cetaceans (STECF 13-20). Interactions with other species have been also reported. This is, for example, the case of the whiting (*Merlangus merlangus*), which represent an important trophic base for the turbot (Raykov *et al*. 2008).). In 2014, the GFCM-SAC identified as associated species to turbot fishery picked dogfish, thomback, common stingray and cetaceans[8].

Knowledge on all those types of interactions is of high importance, but is not always fully described. The ultimate objective of this exercise is to identify the main species that can be considered as “associated species” in the turbot fishery and describe the well-known potential interactions.

8 GFCM-SAC (2014). Report of the Workshop to test the feasibility of implementing multiannual management plans in the Black Sea. GFCM Working Group on the Black Sea (WGBS), Trabzon, Turkey, 24-25 February 2014, 15 pages. Document available at: https://gfcmsitestorage.blob.core.windows.net/documents/Reports/GFCM-Report-2014-SAC-Multiannual-management-plan-BlackSea.pdf

Terms of Reference

With a view to prepare the ground for additional management measures for the turbot fishery in the Black Sea, STECF is requested to:

1. Review and evaluate the associated species identified by the GFCM-SAC;

2. Identify other associated species to turbot fishery when using gillnets and bottom trawlers based on available catch composition data;

3. For those species, detail the existing and potential trophic relationships, competitive interactions and/or role in the fishery (e.g. by-catches species)

Background documents can be found on: https://stecf.jrc.ec.europa.eu/plen1403.

STECF comments

According to GFMC-SAC, the following species are associated with the turbot fisheries in the Black Sea

Associated species (bottom set gillnet fishery only)

- Cetaceans
- Picked dogfish
- Thomback ray
- Common stingray

STECF is not in the position to review and evaluate the proposed list and identify other associated species to the turbot fisheries in the Black Sea, as no catch composition data are available. Therefore, ToR 1 and 2 cannot be answered. Moreover, as catch composition data were not available, STECF is not in the position to provide details on the existing and potential trophic relationships, competitive interactions and/or role in the fishery of the by catch species associated with turbot fisheries in the Black Sea. Thus, also ToR 3 cannot be answered.

6.11. Revision of the STOCKMED Project (MAREA)

Terms of reference

STECF is requested to:

1. Review the draft final report of STOCKMED and evaluate the methodological approach developed. In particular, assess whether the Calinski-Harabasz (CH) index, the Cohen's Kappa coefficient and the Holistic Acceptability Index (HAI), have been adequately identified and weighted. Besides, evaluate whether there is a coherent correlation between the indexes.

2. Compare the validity and robustness of the stock units proposed under the STOCKMED project with the existing GFCM-GSAs limitations;

3. Discuss the feasibility of reproducing the same methodological approach to identify the distribution of other stocks in different areas, notably in the Black Sea; and

4. Make any comment and recommendation with a view to reinforce the methodology developed.

1. **Review the draft final report of STOCKMED and evaluate the methodological approach developed. In particular, assess whether the Calinski-Harabasz (CH) index, the Cohen's Kappa coefficient and the Holistic Acceptability Index (HAI), have been adequately identified and weighted. Besides, evaluate whether there is a coherent correlation between the indexes.**

STECF response

STOCKMED provided a review of the available data and a selection of several indicators considered to be useful for the definition of the stock structure of the main commercial species in the Mediterranean Sea. A methodology was used to standardize and integrate highly heterogeneous types of information, which were however collected for other purposes. The approach used in STOCKMED relies on an explicit spatial formulation and the inclusion of expert judgment using a combination of Geographic Information systems (GIS) and Multi-Criteria Analysis (MCA).The main objective of STOCKMED was to define clusters of sub-populations and corresponding areas within which individuals of the same species have uniform life traits and all stages of the life cycle are represented. Each cluster of subpopulations (i.e. thereafter defined as a single population unit or stock) should occupy a defined area (i.e. stock area) and each stock spawning area should be essentially separated from those of other neighbouring stocks of the same species. Information on demography, genetics, distribution of spawning and nursery grounds, parasites, hydrographic connectivity, distribution of fishing effort and catches and others, were considered for the analyses. Spatial distribution of fishing effort and catches were not used in the analyses, because the information available was characterised by many gaps and it was not possible to disaggregate catch and effort data (e.g. VMS) by species. STECF also noted that the sources of information used (i.e. parameters from the MEDITS catches, genetic samples, parasites etc.) have different and varying spatial resolution, which posed difficulties when trying to combine them into the STOCKMED analysis. Only the parameters from MEDITS surveys covered the entire (EU) Mediterranean.
One of the major problems in clustering is the choice of the information to be considered, which must be informative, robust and non-redundant. The most widely used method to assess the agreement between evaluators on the presence or absence of a characteristic or outcome is the Cohen’s kappa coefficient (Donner et al. 1996).Cohen's kappa measures the agreement between the evaluations of two evaluators when both are rating the same object. A value of 1 indicates perfect agreement. A value of 0 indicates

that agreement is no better than chance. Another issue relates to the need to specify the optimal number of clusters in the clustering algorithms. The problem of choosing the correct number of clusters is a long-standing issue and a number of authors have suggested various indices to facilitate this crucial decision. One of the most popular is the Calinski-Harabasz (1974) pseudo-F-statistic, where the optimal clustering is the one with the highest value of the pseudo-Fstatistic. Another approach is based on the use of the Akaike Information Criterion (AIC, Akaike, 1974) where the optimal clustering is the one with the lowest value of AIC. A third type of approach is based on the Bayesian Information Criterion (BIC, Schwarz, 1978), where the optimal clustering is the one with the lowest BIC value. Finally, the Gap-statistic (Tibshirani et al. 2002) is also used, which utilises a number of generated datasets to obtain a baseline to help determine which number of clusters is best.

In STOCKMED, the different clustering outcomes characterized by values of mean Cohen's Kappa above the upper quantile, were considered as candidate hypotheses of the stock structure. Acceptability analysis was then applied to assess the robustness of the obtained ranking of hypotheses (i.e. number of clusters) and to take a more informed decision. Alternative solutions with high acceptability for the best rank and high Holistic Acceptability Index were defined as the most plausible hypotheses.

The Analytical Hierarchy Process (AHP) methodology was used in STOCKMED for estimating weights of the indicators according to the judgements of a panel of experts. The spatial constrained clustering was performed using six weighted indicators for a number of clusters ranging from 2 to 20. The Calinski-Harabasz (CH) index was used for evaluating the effectiveness of choosing the number of clusters. A sensitivity analysis was performed to assess uncertainty and stability of the results. The Stochastic Multicriteria Acceptability Analysis (SMAA) (Butler et al., 1997) based on Monte Carlo simulations was used.

The weighting for each indicator was computed on the basis of a series of questionnaires distributed to a selected number of experts. A questionnaire was structured as pair-wise comparisons of two indicators with respect to the final objective (i.e. the identification of unit stocks). Some pair-wise comparisons were based on abundance criteria while others on demography or life history traits (i.e. answering the relative importance as explicative variables of abundance vs demography, demography vs life history traits, biomass index vs inverse CV in abundance estimates, mean individual weight in the catch vs sex ratio, etc.). Comparisons ranked pair wise indicators as of "very strong importance", "strong importance", "moderate importance", "slight importance" and "equal importance".

STECF notes that the methods used for clustering in STOCKMED are among those widely used for the same type of data and in principle are suitable methods to attempt to identify candidate fish stocks in the Mediterranean Sea. However, a major weakness with the STOCKMED approach relates to the availability, quality and spatial resolution of the data used, which, it should be noted were collected for other purposes.

2. **Compare the validity and robustness of the stock units proposed under the STOCKMED project with the existing GFCM-GSAs limitations;**

STECF response

The current divisions of the Mediterranean Sea as defined by GFCM are generally arbitrary, often coinciding with National borders (i.e. Spain-France, France-Italy), while in other cases they embrace large islands (i.e. Sardinia). Knowledge of species distributions, spawning concentrations, nursery areas, distribution of fishing activity and catches and connectivity defined as the level of dependence of fish production and population dynamics on dispersal and/or migration among areas had a limited (if any) influence on the current delineation of GFCM-GSAs. STOCKMED aims to address the central issue of the definition of stock units for stock assessment in the Mediterranean Sea, which STECF considers crucial for future data collection and management. Currently, the majority of fish stocks geographic boundaries in the Mediterranean overlap with GSAs boundaries with only some cases for which stock boundaries exceed such GSA limits.

The results of STOCKMED suggest that the stock units for many species encompass more than one GSAs and therefore future stock assessments and management measures should be implemented at the corresponding spatial scales. In particular for *Mullus barbatus* and *Nephrops norvegicus*, there is evidence to suggest that life history features evolves in a relatively well defined spatial scale which might suggest a succession of self-sustaining stocks Caddy, 1998; Fiorentino *et al*., 2008; Hill, 1990). For *Nephrops norvegicus*, literature from the North European seas suggest that all post-larval life history features evolve in a well-defined spatial scales bounded by discrete mud habitats. However, where mud habitats are in sufficient proximity and hydrodynamic conditions permit, there can be some degree of larval exchange between areas (pers. comm. Colm Lordan). Notwithstanding *Nephrops norvegicus* are assessed based on their discrete habitats (functional units). However, it is likely that for small pelagics such as anchovy and sardine, the spatial scales are wider than single GSAs and there exists some evidence to that effect (Caddy 1998).

STECF is not able to compare the validity and robustness of the stock units proposed under the STOCKMED project with the existing GFCM-GSAs limitations. However, STECF consider, the new stock unit's configuration should be checked against the major requirements for stock assessment, i.e. productivity and population isolation i.e. productivity and population isolation (i.e. self-sustained sub-populations with no major migration and immigration among neighbouring units and with separate spawning areas). While the latter cannot be checked due to lack of data, the second can be roughly done through the analysis of differences between the old and new stock configuration in productivity as for example k, density, L_{max}, natural mortality rates and other features.

STECF also considers that the consequences of the new stock configuration need to be evaluated in terms of data collection and processing, stock assessment and management advice. STECF consider that these aspects need further consideration before final conclusions about a new stock configuration can be made and that this would be best advanced through a dedicated expert group.

3. **Discuss the feasibility of reproducing the same methodological approach to identify the distribution of other stocks in different areas, notably in the Black Sea;**

STECF response

The same types of data problems found regarding the Mediterranean are also applicable for the Black Sea as also in this area relevant information is partial or almost absent. Until such data issues are resolved, STECF considers that the current definition of a single GSA should be maintained.

4. **Make any comment and recommendation with a view to reinforce the methodology developed**

STECF has no other major comment or recommendations concerning the methodology developed, than those already given under ToR 1 and 2.

STECF conclusions

ToR1, 3 and 4

STECF recognizes the huge effort made by STOCKMED and considers the used methods are in principle suitable for the identification of clusters and also suitable for integrating different types of available information (survey data, genetics, parasites etc.). Although, all available data were used in the project, there are still a number of data deficiencies that should be considered. Relevant data for defining stocks such as tagging and genetic data were very scarce or not available for most of the species. Furthermore, available data on fisheries, in particular on the spatial distribution of fishing effort and fleets were very scant and unsuitable for the purposes of the project. The same problems found regarding the Mediterranean also apply for the Black Sea as also in this area relevant information is partial or almost absent.

ToR2

STECF considers any new stock unit configuration should be checked against the major requirements for stock assessment, i.e. productivity and population isolation (i.e. self-sustained sub-populations with no major migration and immigration among neighbouring units and with separate spawning areas). STECF also considers that the consequences of the new stock configuration need to be evaluated in terms of data collection and processing, stock assessment and management advice. Furthermore, STECF considers that these aspects need further consideration before final conclusions about a new stock configuration can be made and that this would be best advanced through a dedicated expert group.

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6.12. Update of Table 6.3.2 of the PLEN 14-01 report with anglerfish and megrims

Terms of Reference

STECF is requested to update the Table 6.3.2. given in the spring plenary report (PLEN 14-01) to include anglerfish and megrims.

STECF response

STECF has compiled the requested information on DLS stocks in order to address the ToRs and is presented in Table 6.12.1.

The stocks for which new information is included are: Anglerfish in Division IIIa and Subareas IV and VI, Anglerfish (*Lophius budegassa*) in Divisions VIIb–k and VIIIa,b,d, Anglerfish (*Lophius piscatorius*) in Divisions VIIb–k and VIIIa,b,d, Megrim (*Lepido rhombus* spp.) in Division VIb (Rockall), Megrim (*Lepido rhombus whiffiagonis*) in Divisions VIIb–k and VIIIa,b,d.

Data on catch and stock status were extracted from the different working groups of ICES; prices (and estimate of the trend over the last three years) come from the 2014 Annual Economic report database; vulnerability index by species (from Cheung et al. 2005, based on life history parameters) was extracted from FishBase; and DLS categories were provided by the ICES secretariat. Stock value in 2013 was estimated as landings x price.

Table 6.12.1. Update of the Table 6.3.2.given in the spring plenary report (PLEN 14-01) to include anglerfish and megrims.

Stock name	Range of catch over the available time-series of data	Catch over the last year	Average first-sale price over the last 3 years	Catch in value ('000 €)	Trends in prices (last three years)	Is species normally caught as a by-catch	Impact of fishing restriction on other species	Vulnera-bility index	Evidence that the stock is depleted below Bmsy	Evidence of a declining trend in stock size.	Preliminary estimates of Fmsy and current F	2013 DLS category (and sub category)
Anglerfish in Division IIIa and Subareas IV and VI	5623-35039	12185	3.90	47607	-11%	No	Yes	69;72	No	No (+22%)	No	3.2.0
Anglerfish (Lophius budegassa) in Divisions VIIb–k and VIIIa,b,d	5720-12655	12655	4.00	50674	-3%	No	Yes	69	No	No (+33%)	No	3.2.0
Anglerfish (Lophius piscatorius) in Divisions VIIb–k and VIIIa,b,d	12766-28977	24200	4.00	96903	-3%	No	Yes	72	No	No (+20%)	No	3.2.0
Megrim (Lepidorhombus spp.) in Division VIb (Rockall)	0.106-1.091	0,278	3.21	0.893	11%	?	Yes	54	No	No (+31%)	No	3.2.0
Megrim (Lepidorhombus whiffiagonis) in Divisions VIIb–k and VIIIa,b,d	13400-21800	19900	3.09	61502	-17%	No	Yes	54	No	No (+13%)	No	3.2.0

6.13. Amendment to DCF National Collection Programme, UK

Background information

STECF has previously provided advice on intended changes to the UK National Data Collection Programme (STECF PLEN 12-01).

The UK has proposed two further changes to the National Programme (NP);

i. Alteration of Western IBTS 4th quarter (English) survey to Q1 ecosystem survey; and
ii. Replacement of the Western Channel Beam Trawl Survey (UK-WEC-BTS) with the Quarter 1 Western Channel Beam Trawl Survey (Q1WCBTS)

Alteration of Western IBTS 4th quarter (English) survey to Q1 ecosystem survey:
In 2012 Cefas proposed creation of a new survey in the Celtic Sea and Western English Channel by amalgamating the DCF-funded Western IBTS 4th quarter survey and a currently non-DCF beam trawl survey in the western English Channel. The proposal was reviewed by STECF in PLEN-12-01.
The UK report that difficulties were encountered in the combined GOV and beam trawl survey in Q1 2013 that led to the re-design of the survey to fish only with the beam trawl in 2014. The UK considers the gap left in GOV coverage is a small part of the range of whitefish stocks.

Replacement of the Western Channel Beam Trawl Survey (UK-WEC-BTS) with the Quarter 1 Western Channel Beam Trawl Survey (Q1WCBTS):
This survey is one of the three indices in sole and plaice assessments. The UK has considered that the cessation of this survey will not affect adversely the sole nor plaice assessment in ICES VIIe. The UK intends to instead continue with the Q1WCBTS and will seek core funding in the next round of STECF survey review. There is no information provided on the duration of the current FPS survey.

Background documents can be found on: https://stecf.jrc.ec.europa.eu/plen1403.

Request to STECF

Acceptance by the Commission of any modification to surveys included in the DCF EU Multiannual Programme (Commission Decision 2010/93/EU) shall be conditional to STECF approval and therefore STECF is requested to evaluate whether the UK's proposed amendments are acceptable or not. STECF are requested to consider the proposals by the UK and to determine:

- If the amended Q1 ecosystem survey will provide the necessary information to support stock assessments. STECF are asked to highlight any deficiencies in methodology or coverage.

- STECF are asked to consider the impacts and rationale for the cessation of the UK_WEC_BTS and determine if the Q1WCBTS will provide the necessary information (noting that the continuation of the FPS survey is not certain)

STECF observations

The UK proposal was accompanied by supporting documentation which is available at (http://stecf.jrc.ec.europa.eu/plen1403)

The UK has decided to implement the following changes to its surveys in the western English Channel and Celtic Sea.

1. **Alteration of Cefas Western IBTS 4th quarter (English) survey to Q1 ecosystem survey.**

For many years Cefas on behalf of the UK undertook, the western IBTS Q4 survey in the Celtic Sea with DCF funding support. In 2012 Cefas proposed to withdraw the IBTS Q4 survey and create a new survey series by merging the western IBTS Q4 survey with a beam trawl survey in the western English Channel in Q1. In relation to that proposal STECF advised the following:

The proposed withdrawal of the UK (CEFAS) contribution to the Western IBTS Q4 is in line with the developed survey review criterion 'to inform management decisions' (STECF, 2010). The Western IBTS Q4 survey has not been considered in any stock assessments and this is likely to remain the case. STECF concludes that the proposed withdrawal would contribute to maximize the effective use of both national budgets and the DCF budgets (national sampling plans for 2012 and 2013).

STECF considers that the reasoning presented by the UK in support of the decision to drop the GOV component from the Quarter 1 Western Channel beam trawl survey (Q1WCBTS) is well argued and that such reasoning provides sufficient justification for that decision. The western Q4 IBTS has not contributed directly to ICES stock assessments.
In 2013, Cefas undertook the proposed Q1WCBTS (incorporating both beam trawl and GOV tows) and based on experiences gained, the 2014 Q1WCBTS survey in the western English Channel and Celtic Sea in 2014 was carried out using only a beam trawl for fishing operations, but various other gears were deployed to sample other environmental variables. The 2014 survey was also extended to cover both the Celtic Sea and the western English Channel and somewhat confusingly is also referred to in the supporting documentation from the UK as the Q1 ecosystem survey. Hence for clarity it should be noted that as of 2014, the Q1WCBTS and the Q1 ecosystem survey are one and the same.

In support of its decision, the UK argues that the Q1 ecosystem survey (Q1WCBTS extended to cover the Celtic Sea (Divisions VIIf, g & h) will better address the current and future needs of the DCF and DC-MAP (including provision of scientific data to support the Marine Strategy Framework Directive) in a cost effective manner. Additionally the UK argues that it better supports continued collaboration between industry and science.

Furthermore, in support of its proposal for the Q1 ecosystem survey, the UK presents the following arguments.

1. The current UK-WEC-BTS although having a 30 year time series, covers only a small proportion of ICES SubDiv. VIIe.
2. The current UK-WEC-BTS has no scope for collecting additional data in support of the MSFD, due to constraints on staffing levels and facilities on board the FV Carhelmar.

3. The new Q1WCBTS, has been running for 9 years (as of 2014), and is providing an indices for the Western Channel sole. It is being delivered to the plaice assessment but has yet to be fully included (inter-benchmark has been recommended for 2015). It also covers the entirety of SubDiv. VIIe, and is random stratified, allowing for robustness to sampling design for future DC-MAP needs.
4. The new Q1WCBTS is also collecting data for all other species (in particular commercial species biological samples) allowing for further indices to be calculated to support other stock assessments.
5. After the removal of the Quarter 4 South Western International Bottom Trawl Survey (Q4SWIBTS) by Cefas in 2011, communication between Cefas and the STECF agreed that the Q1WCBTS would replace the Q4SWIBTS for consideration for DCF funding.

STECF notes that the Q1WCBTS, which already has a 9-year time series of data for Division VIIe in Q1, will provide a new Q1 time-series of fishery-independent data for a range of stocks in the Celtic Sea (VIIf,g&h). The utility of such data for the assessment of stocks in the Celtic Sea, will ultimately be determined through the ICES stock assessment process.

2. Replacement of the Western Channel Beam Trawl Survey (UK-WEC-BTS) with the Quarter 1 Western Channel Beam Trawl Survey (Q1WCBTS)

STECF notes that this proposal involves replacing the Western Channel Beam Trawl Survey (UK-WEC-BTS), which was carried out in Q4 and was part-funder through the DCF, with the Quarter 1 Western Channel Beam Trawl Survey (Q1WCBTS) referred to in proposal 1 above and as of 2014 is also referred to as the Q1 ecosystem survey and which currently is not part-funded through the DCF.

Up to 2013, a third survey was also carried out by the UK in Division VIIe; the UK-funded Fisheries Science partnership Western Channel sole Survey. STECF notes that the future of that survey while uncertain,
STECF notes that the UK-WEC-BTS (Q4) provided annual indices of abundance over a time series of 30 years and has routinely been used in ICES assessments for sole and plaice in Division VIIe. The (Q1WCBTS) already has a 9-year time series of data (2006-2014) and is currently used in the ICES assessment for VIIe sole but not VIIe plaice.

In support of the decision to replace the UK-WEC-BTS with the extended Q1WCBTS (Q1 ecosystem survey), the UK provided a commentary on the results of an assessment of the effect of losing the time-series of data from the UK-WEC-BTS on the stock assessment of VIIe sole (Annex 1B of the supporting information). The commentary contends that cessation of the UK-WEC_BTS will not adversely affect the stock assessments for either plaice or sole in VIIe. However, the data and diagnostics of the investigations undertaken were not presented, so STECF was unable to confirm or refute this conclusion. In addition, the investigations undertaken, only inform on a series of potential possible effects on assessments that removing the UK-WEC_BTS might have had on past assessments, and is not informative as to the effects on future assessments.

STECF considerations on both UK proposals

In summary, the UK decisions affecting the surveys mentioned above can be summarised as follows:

- Cessation of the UK quarter 4 bottom trawl (GOV) survey of the Celtic Sea (IBTS Q4) – this has already occurred and the survey has not been conducted since 2011.
- Cessation of the Q4 western English Channel beam trawl survey UK-WEC-BTS (Q4) – this currently has a 30-year time series of fishery-independent data up to 2013. The UK-WEC-BTS was not conducted in 2014.
- Both surveys above (IBTS Q4 and UK-WEC-BTS (Q4)) to be replaced with the quarter 1 western channel beam trawl survey Q1WCBTS, which is to be extended to cover both the western English channel (Division VIIe) and the Celtic Sea (Divisions VIIf, g & h) and to be referred to as the Q1 ecosystem survey, and which was carried out in 2014.

STECF notes that the Q1 ecosystem survey will provide a new time-series of fishery independent beam trawl survey catch and effort data for the Celtic Sea and extend the 9-year time series already established for Q1 in Division VIIe and which is presently used in the assessment for VIIe sole. STECF also notes that Cefas on behalf of the UK also undertakes another beam trawl survey in Q3 each year (the UK (E+W) BTS Q3, also known as the Irish Sea and Bristol Channel beam trawl survey) which is used for the assessment of Celtic Sea plaice and sole. Hence UK will in future, provide two fishery –independent time-series of abundance estimates from beam trawl surveys in the Celtic Sea, one in Q1 and a second in Q3.

STECF agrees that the UK decision to conduct a Q1 ecosystem survey seems a sensible and cost-effective means to collect fishery-independent data for a number of stocks in the western English Channel and the Celtic Sea in the first quarter of the and also to collect data on other environmental variables that will inevitable prove useful in informing on MSFD objectives. STECF notes that historically, survey abundance data from surveys conducted in Q3 in the Celtic Sea have had greater influence on stock assessments of plaice and sole, than equivalent data collected in Q1. Whereas for gadoids, the converse appears to be true. However, the true impact on future stock assessments of both flatfish and gadoids, will only be discerned once such assessments have been carried out.

STECF suggests that it would seem appropriate if the ICES Working Group on beam trawl surveys (WGBEAM) and the ICES Working Group on the Celtic Sea ecosystem (WGCSE) were to be given the opportunity to assess the potential utility of the Q1 ecosystem survey for the assessment of stocks in the western English Channel and Celtic Sea. It would also seem appropriate to assess the Q1 ecosystem survey against the criteria outlined in the STECF Report on Surveys (STECF 07-02) to assess whether the survey should be included as an essential survey under the future DCMAP and its potential eligibility for co-funding under the EMFF. STECF notes that the survey has been designed in accordance with the recommendations from the ICES working group on integrating Surveys for the Ecosystem approach (WGISUR; ICES CM 2012/SSGEEST:20)

STECF conclusions

In response to the specific requests from the Commission, STECF concludes the following:

1. *Whether the amended Q1WCBTS survey will provide the necessary information to support stock assessments and whether there are any deficiencies in methodology or coverage.*

STECF concludes that the UK decision to conduct a Q1 ecosystem survey seems a sensible and cost-effective means to collect fishery-independent data for a number of stocks in the western English Channel and the Celtic Sea in the first quarter of the year and also to collect data on other

environmental variables that will inevitably prove useful in informing on MSFD objectives. Such data have the potential to support the assessment of stocks in both areas.

STECF has not identified and deficiencies in proposed methodology or survey coverage.

2. *The impacts and rationale for the cessation of the UK-WEC-BTS and determine if the Q1WCBTS will provide the necessary information (noting that the continuation of the FSP survey is not certain.*

STECF concludes that the uncertainty concerning the continuation of the UK FSP Western Channel sole survey has no direct bearing on the UK decision to replace the UK-WEC-BTS with the Q1WCBTS.

The impacts of the decision to terminate the UK-WEC-BTS are impossible to predict with any certainty. However, the ICES stock assessment for VIIe sole, has routinely included data from this survey for many years. The survey has a 30-year time-series and the loss of such a time series of data may potentially affect future assessments. The analysis outlined in the supporting documentation from the UK contends that cessation of the UK-WEC_BTS will not adversely affect the stock assessments for either plaice or sole in VIIe. However, STECF was unable to confirm or refute that conclusion as the investigations undertaken, only inform on the possible effects that the UK-WEC_BTS might have had on past assessments, and is not informative as to the effects on future assessments. Whether the extended Q1WCBTS (Q1 ecosystem survey) will prove to be useful for future assessments of stocks in VIIe will only be ascertained once such assessments have been carried out.

STECF also concludes that given the decision to replace the UK-WEC-BTS with the extended Q1WCBTS (Q1 ecosystem survey it would seem appropriate if the ICES Working Group on beam trawl surveys (WGBEAM) and the ICES Working Group on the Celtic Sea ecosystem (WGCSE) were to be given the opportunity to assess the potential utility of the Q1 ecosystem survey for the assessment of stocks in the western English Channel and Celtic Sea. It would also seem appropriate to assess the Q1 ecosystem survey against the criteria outlined in the STECF Report on Surveys (STECF 07-02) to assess whether the survey should be included as an essential survey under the future DCMAP and its potential eligibility for co-funding under the EMFF.

References

STECF 07-02. Report_SG-RN 10-01 - Review of Surveys _JRC49126.pdf

6.14. Request for an Assessment of cod catches in Baltic Sea subdivisions 27 & 28

Background

Article 29 of Council Regulation (EC) No 1098/2007 of 18 September 2007 establishing a multiannual plan for the cod stocks in the Baltic Sea and the fisheries exploiting those stocks requires the Commission to decide annually on basis of advice from STECF about the application of the fishing effort management limits defined in Article 8 of the same regulation to Subdivisions 27, 28.1 and 28.2.

Terms of Reference

The Commission requests STECF to advise if catches of cod in the period 1 October 2013 to 30 September 2014 in Subdivisions 27 and 28.2 were lower than 3% of the total catches of cod in Subdivisions 25 to 28 and if the catches of cod in Subdivision 28.1 were higher than 1.5 % of the total catches of cod in Subdivisions 25 to 28.

Background documents can be found on: https://stecf.jrc.ec.europa.eu/plen1403.

STECF response

STECF received catch data from the Commission for all Member States fishing in the Baltic It is not stated clearly whether the reported data relate to landings only or to total catch of cod (including estimates of discards). However, STECF understands that the reported data relate to landings and not to catches of cod.

Table 6.14.1 Cod catches from subdivisions 25-28 of the Baltic Sea from 1 October 2012 to 30 September 2013 as reported by Member States.

Country	Subdivision				
	25-28 (kg)	27+28.2 (kg)	28.1 (kg)	27+28.2 (%)	28.1 (%)
Denmark	5605,525	0	0	0	0
Estonia	15,2026	883	970	0.58	0.64
Finland*	64,000	0	0	0	0
Germany**	764,500	0	0	0	0
Latvia	1809,527	143,937	0	7.95	0
Lithuania	1256,037	0	0	0	0
Poland***	11701,705	0	0	0	0
Sweden	4029,942	27,113	0	0.67	0
TOTAL	**25383,262**	**171,933**	**970**	**0.68**	**0.004**

* Finland reported by-catch 23,000 kg
** Germany reported discard 38,700 kg
*** Poland catches without catches in subdivision 29 (839 kg)

The data in Table 6.15.1 indicate that between 1 October 2013 and 30 September 2014, reported landings of cod from Subdivisions 27 and 28.2 accounted for approximately 0.7% of the total reported landings of cod from Subdivisions 25-28. Similarly, the reported landings of cod from Subdivision 28.1 represented approximately 0.004 % of the total reported landings of cod from Subdivisions 25-28.

STECF notes that according to ICES WKEID (2010), discards of cod in the Baltic represents on average, approximately 10% of the total catches of cod.

STECF conclusions

STECF concludes that over the period 1 October 2013 to 30 September 2014 reported landings of cod from Subdivisions 27 and 28.2 were lower than 3% of the total landings reported from Subdivisions 25 to 28. Similarly, reported landings of cod from Subdivision 28.1 were lower than1.5 % of the total landings in Subdivisions 25 to 28. Assuming an average discard rate of about10% of the catches for Eastern Baltic cod, STECF concludes that overall, the reported catches

of cod were lower than the thresholds defined in Article 29 of Council Regulation (EC)No 1098/2007of 18 September 2007.

7. STRATEGIC ISSUES/DISCUSSIONS

7.1. The prospects of STECF work on multiannual plans

DG MARE presented the latest developments on multi-annual plans (MAP) regarding the framework agreed between the Council and the Parliament. MAPs will have to include the elements foreseen in the CFP, including which of these should be subject to regionalization and provisions regarding the landings obligations. The new MAP will not include an explicit HCR, but will define scope, objectives, targets and safeguards; the new regulations will have provisions to make them adaptable to changes in science. To deal with mismatches between targets for several species, as in the case for multi-species fisheries, the MAP should define the targets (usually the fishing mortality that delivers MSY) in ranges, reflecting scientific uncertainty, which are expected to provide the required flexibility to deal with these problems. Regarding the role of the STECF, DG MARE expects it to be similar and informed the plenary that there is a long list of plans to be analysed until 2016. There's still a fair amount of uncertainty about the scientific analysis that will be required to support impact assessments.

7.2. Problems with DCF data transmission to STECF

Background provided by DG MARE
Increasing problem of MS providing data after closing of data call and revising the already submitted data before or even during the STECF meetings
DG MARE will clarify that the legal deadline for MS to provide data to end users is set out in the DCF, and is 1 month. The data must have gone through a national quality check too before it is sent to the end user. MS must respect this and any delays will be treated as a failure to comply with the DCF. The COM assesses annually MS's compliance with their data transmission obligations and to be in a position to do so, MARE needs feedback on this from end users, such as the STECF. Every STECF EWG therefore is invited to systematically report in a dedicated section of their report on major problems they faced due to data not being provided by MS, or being of insufficient quality. These STEC comments will be included in the annually compliance exercise alongside feedback from the JRC on the timeliness and coverage of data provisions generated through the data call upload monitor.

STECF comments
STECF is generally concerned that submission of data is hampering the work of several working groups and the analysis that can be undertaken during the meeting. Furthermore, working group chairs have been put into a tricky situation having to accept or refuse any further data uploads.

STECF reiterates that the current procedure for EWGs associated with DCF data calls are specified in the Guidelines for STECF Expert Working Group (EWG) Chairs (March 2014), and are as follows:

Data calls to Member States associated with STECF EWGs are issued by the Commission. JRC serves those data calls feeding into the work of the STECF EWGs. Each data call has an official deadline for data submission by MS and according to DCF legislation, prime responsibility for quality of data rests with the MS. After the deadline for submission of data under data calls and before the start of the relevant EWGs, JRC carries out further quality checks of submitted data and if necessary raises any issues with the relevant MS thereby providing an option for correction and resubmission. During an EWG meeting or between 2 EWGs dealing with the same topic (e.g. AER Fleet 2013) further corrections and/or re-uploads may be necessary.

Chairs and EWGs are therefore requested to take note of the following:

- *to work with only with those data available at the time of the EWG. EWGs should take into account the quality of such data and comment accordingly.*
- *changes/updates to data submitted by MS should only be made after consultation with the relevant DCF national correspondent*
- *to document any changes/updates undertaken subsequent to the data submission by MS*
- *to not accept or take into account any data (re-)submission **after** the EWG took place (note: 10 working days deadline for report)*

Currently, JRC undertakes a data quality check of the submitted data, communicates with the Member States about any corrections considered to be needed before providing the data to the respective Expert Working Groups.

A dedicated section on data quality is already integral part of the EWG reports linked to the individual data calls.

STECF is aware of the dilemma between having a strict cut-off point with the possibility of having to omit late data submissions and resubmissions of data, and the wish to have the most credible report as possible.

However, STECF considers that the guidelines for chairs could serve as useful basis for a protocol describing and defining data call deadlines and clear cut-off points for data uploads and have this protocol agreed by DG MARE (at high level), STECF and JRC. Such a protocol will be drafted by the STECF bureau and discussed during the bureau meeting of 4 to 5 December.

8. STECF RECOMMENDATIONS FROM STECF-PLEN-14-03

No new recommendations arose during discussions at the 47th plenary meeting of the STECF.

9. CONTACT DETAILS OF STECF MEMBERS AND OTHER PARTICIPANTS

[1] - Information on STECF members and invited experts' affiliations is displayed for information only. In some instances the details given below for STECF members may differ from that provided in Commission COMMISSION DECISION of 27 October 2010 on the appointment of members of the STECF (2010/C 292/04) as some members' employment details may have changed or have been subject to organisational changes in their main place of employment. In any case, as outlined in Article 13 of the Commission Decision (2005/629/EU and 2010/74/EU) on STECF, Members of the STECF, invited experts, and JRC experts shall act independently of Member States or stakeholders. In the context of the STECF work, the committee members and other experts do not represent the institutions/bodies they are affiliated to in their daily jobs. STECF members and invited experts make declarations of commitment (yearly for STECF members) to act independently in the public interest of the European Union. STECF members and experts also declare at each meeting of the STECF and of its Expert Working Groups any specific interest which might be considered prejudicial to their independence in relation to specific items on the agenda. These declarations are displayed on the public meeting's website if experts explicitly authorized the JRC to do so in accordance with EU legislation on the protection of personnel data. For more information: https://stecf.jrc.ec.europa.eu/adm-declarations and http://stecf.jrc.ec.europa.eu/web/stecf/about-stecf/cv .

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Abstract

The Scientific, Technical and Economic Committee for Fisheries hold its 47thplenary on 10-14 November in Brussels (Belgium). The terms of reference included both issues assessments of STECF Expert Working Group reports and additional requests submitted to the STECF by the Commission. Topics dealt with were *inter alia* assessments the EU marine aquaculture and fish processing sectors, and Mediterranean stock assessments.

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The Scientific, Technical and Economic Committee for Fisheries (STECF) has been established by the European Commission. The STECF is being consulted at regular intervals on matters pertaining to the conservation and management of living aquatic resources, including biological, economic, environmental, social and technical considerations.

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